A Dissertation on

A Clinical Cross Sectional Study on Palmoplantar Dermatoses

Dissertation submitted to

THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI-600032

With partial fulfillment of the requirements for the award of

M.D.DEGREE IN

DERMATOLOGY, VENEREOLOGY AND LEPROLOGY

(BRANCH - XII)

COIMBATORE MEDICAL COLLOGE, COIMBATORE

MAY 2019

DECLARATION

I **Dr. N.Dinesh Kumar** solemnly declare that the dissertation entitled "**A Clinical Cross Sectional Study on Palmoplantar Dermatoses**" is a bonafide work done by me at Coimbatore Medical College Hospital during the year June 2017 to May 2018 under the guidance & supervision of **Dr.M.Revathy M.D.(Derm)** Professor& Head of Department, Department of Dermatology, Coimbatore Medical College & Hospital. The dissertation is submitted to Dr.MGR Medical University towards partial fulfillment of requirement for the award of MD degree branch XII Dermatology, Venereology and Leprology.

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CERTIFICATE

This is to certify that the dissertation entitled **"A CLINICAL CROSS SECTIONAL STUDY ON PALMOPLANTAR DERMATOSES"** is a bonafide original work done by **Dr.N . D I N E S H K U M A R** Post graduate student in the Department of Dermatology, Venereology and Leprology, Coimbatore Medical College Hospital, Coimbatore under the guidance of **Dr.M.Revathy M.D.(Derm),** Professor and HOD of Department, Department of Dermatology, Coimbatore Medical College Hospital, Coimbatore in partial fulfillment of the regulations for the Tamilnadu DR.M.G.R Medical University, Chennai towards the award of MD., degree (Branch XII.) in Dermatology, Venereology and Leprology.

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Dissertation Topic	:	**A Clinical cross sectional study on Palmoplantar dermatoses**

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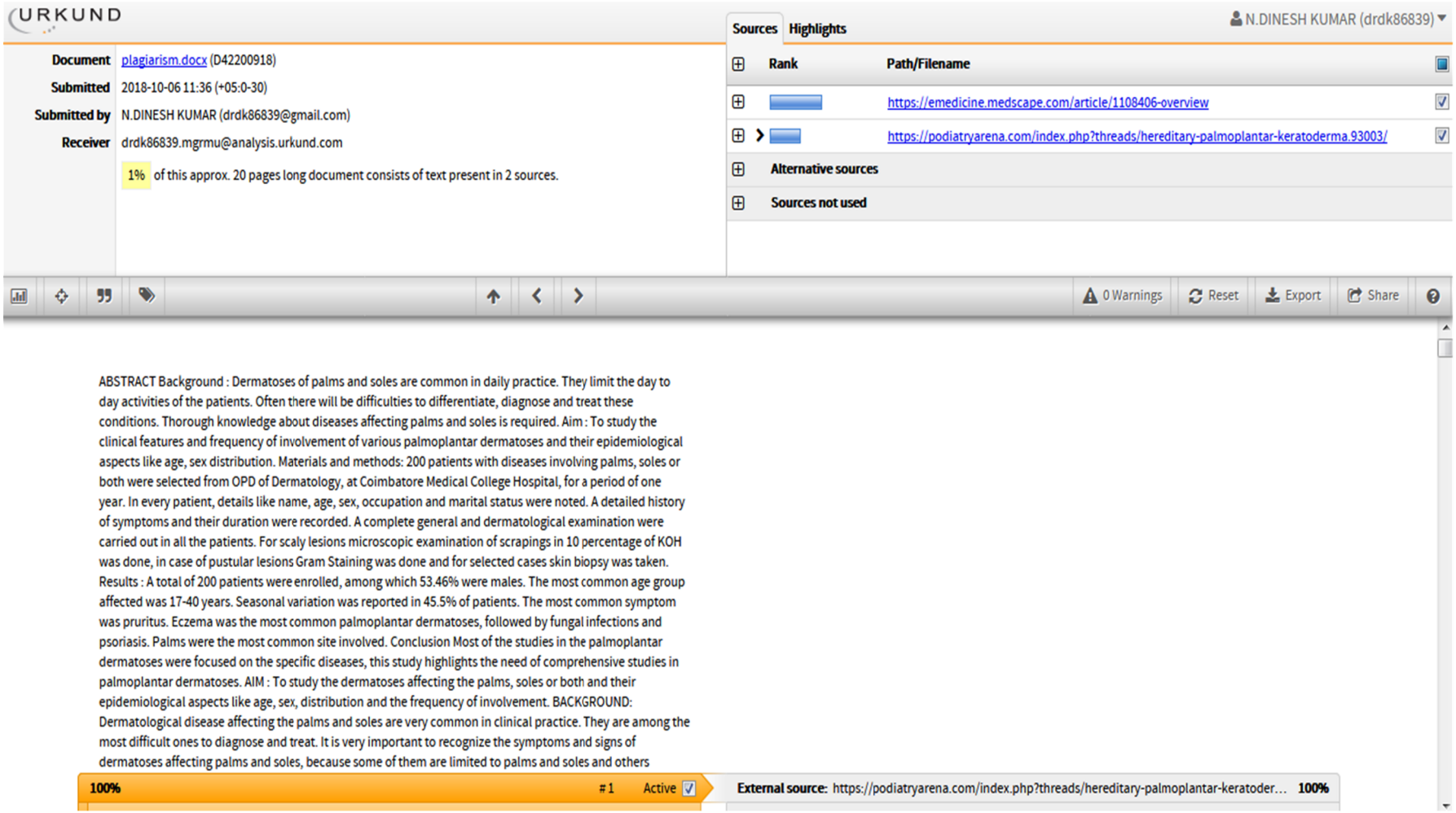
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ABSTRACT Background : Dermatoses of palms and soles are common in daily practice. They limit the day to day activities of the patients. Often there will be difficulties to differentiate, diagnose and treat these conditions. Thorough knowledge about diseases affecting palms and soles is required. Aim : To study the clinical features and frequency of involvement of various palmoplantar dermatoses and their epidemiological aspects like age, sex distribution. Materials and methods: 200 patients with diseases involving palms, soles or both were selected from OPD of Dermatology, at Coimbatore Medical College Hospital, for a period of one year. In every patient, details like name, age, sex, occupation and marital status were noted. A detailed history of symptoms and their duration were recorded. A complete general and dermatological examination were carried out in all the patients. For scaly lesions microscopic examination of scrapings in 10 percentage of KOH was done, in case of pustular lesions Gram Staining was done and for selected cases skin biopsy was taken. Results : A total of 200 patients were enrolled, among which 53.46% were males. The most common age group affected was 17-40 years. Seasonal variation was reported in 45.5% of patients. The most common symptom was pruritus. Eczema was the most common palmoplantar dermatoses, followed by fungal infections and psoriasis. Palms were the most common site involved. Conclusion Most of the studies in the palmoplantar dermatoses were focused on the specific diseases, this study highlights the need of comprehensive studies in palmoplantar dermatoses. AIM : To study the dermatoses affecting the palms, soles or both and their epidemiological aspects like age, sex, distribution and the frequency of involvement. BACKGROUND: Dermatological disease affecting the palms and soles are very common in clinical practice. They are among the most difficult ones to diagnose and treat. It is very important to recognize the symptoms and signs of dermatoses affecting palms and soles, because some of them are limited to palms and soles and others
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ACKNOWLEDGEMENT

I solicit my humble thanks to the Dean **Dr.B.Asokan, M.S., Mch.,** Coimbatore Medical College Hospital, for allowing me to conduct the study in this hospital.

I am also immensely thankful to my guide Prof**. Dr.M.Revathy M.D. (Derm),** Professor and Head of the Department, Dermatology for her invaluable guidance, motivation and help throughout the study.

I express my earnest gratitude to **Dr.Muthukumaran MD,** prof. and Head of the Department, Department of venerealogy, all the Assistant Professors, Department of Dermatology **Dr.B.Eswaramoorthy M.D., Dr.R.Madhavan M.D., Dr.S.Bharathi M.D., Dr.S.Swarnalakshmi M.D., Dr.Ranjani M.D., and Dr.pradeepa M.D** without their help and guidance this work would not have been possible.

I owe a lot to my parents, my spouse and other family members who have always been my pillar of support in all stages of my life.

My sincere thanks to my seniors Dr.A.Amutha, Dr.M.S.krishna Meera and my fellow post graduate colleagues Dr.S.Divya, Dr.Vijayalakshmi, Dr.Manivannan, Dr.Neikhriele Khro who have been of immense help throughout the study period.

I am very grateful to all patients for their co-operation and participation in the study.

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LIST OF ABBREVIATIONS

ACD	:	Allergic Contact Dermatitis
APC	:	Antigen Presenting Cells
ICD	:	Irritant Contact Dermatitis
PPLP	:	Palmo Plantar Lichen Planus
PPK	:	Palmo Plantar Keratoderma
PPP	:	Piezogenic Pedal Papule
PPD	:	Paraphenylenediamine
EMF	:	Erythema Multi Forme
PPPD	:	Porokeratosis Plantaris Palmaris et Disseminata
ALM	:	Acral Lentigenous Melanoma
HFMD	:	Hand Foot Mouth Disease.

KEY TO MASTERCHART

MA	Male	**FH**	Focal hyperhidrosis
FE	Female	**DLE**	Discoid lupus erythematosus
ML	Manual labourer	**EMF**	Erythema multiforme
HW	House wive	**PPK**	Palmoplantar keratoderma
ST	Student	**EN**	Epidermal nevus
EX	Executive	**HK**	Hyperkeratotic type
OT	Other	**CP**	Chronic plaque psoriasis
PS	Psoriasis	**ERY**	Erythematous type
LP	Lichen planus	**PP**	Pustular psoriasis
PK	Pitted keratolysis	**POM**	Pompholyx
WH	Wart	**HE**	Hyperkeratotic eczema
HFMD	Hand foot mouth disease	**WT**	Wear and tear eczema
SS	Secondary syphilis	**FT**	Finger tip eczema
C.INT	Candidal intertrigo	**US**	Unspecified
EZ	Eczema	**APR**	Apron
CA	Callus	**JPD**	Juvenile plantar dermatosis
CO	Corn	**SUM**	Summer
LU	Leprosy ulcer	**WIN**	Winter
TIN	Tinea	**MON**	Monsoon
WT	Wart	**NO**	No seasonal variation
		FT	Finger tip eczema

INTRODUCTION

Dermatoses affecting the palms and soles are more common in our day to day practice, because they are more frequently exposed to various allergens, mechanical stress and infectious agents than any other parts in our body. Lesions in the palms and soles affect the physical activities of patients which result in major impact on quality of life.

It is very important to recognize the symptoms and signs of skin conditions affecting the palms and soles, because some of the skin lesions confined only to palms and soles and others provide a clue to their associated systemic disorders. Furthermore at times, various palmar and plantar lesions can be a presenting feature before other signs of the disease become apparent. Hence forth, examination of palms and soles should be an essential component of a complete dermatological examination.

REVIEW OF LITERATURE

A CLINICAL CROSS SECTIONAL STUDY ON PALMOPLANTAR DERMATOSES

Palms and soles have a non hairy or glabrous Skin which is marked by series of ridges and grooves(sulci) with a configuration unique to each individual known as Dermatoglyphics. They have a thicker epidermis, a complex dermo-epidermal junction and an encapsulated sense organs within dermis and highest concentration of sweat glands but lacks sebaceous glands, apocrine glands and hair follicles.

Palms and soles are affected by various dermatological diseases. There is no universally approved classification for palmoplantar dermatoses. They can be classified based upon the causes into inflammation, infection, papulosquamous and keratinisation disorders.

Table 1: Classification of Palmoplantar Dermatoses

CONDITIONS	DISEASES
INFLAMMATION	Eczema- irritant, allergic, atopic, endogenous Erythema multiforme ID reaction
INFECTIONS	Bacterial – Pitted Keratolysis, Intertrigo, Sec. syphilis, leprosy Viral –Wart, Hand Foot Mouth Disease Fungal- Dermatophytosis, Candidiasis
PAPULOSQUAMOUS DISORDERS	Palmoplantar psoriasis Lichen planus palmoplantaris
KERATINIZATION DISORDERS	Palmoplantar keratoderma Keratolysis exfoliativa
MECHANICAL INJURY	Trophic ulcer, Corn, Callosities, Traumatic fissures Friction blisters, Talon noir Piezogenic pedal papules
DRUG REACTION	Acral erythema
DISORDERS OF SWEAT GLAND	Hyperhidrosis
AUTOIMMUNE DISORDERS	Bullous pemphigoid (dyshydrosiform variant)
MALIGNANCY	Tripe palm Acral melanoma

ECZEMA

'Dermatitis' and 'eczema' are interchangeable terms. The word 'eczema' comes from the Greek , meaning 'to boil'. Eczema is a clinical and histological pattern of inflammation of skin. The cause for this reaction pattern is broad. It is characterized by erythema, vesiculation in acute stage and lichenification and fissuring in chronic stage.[1]

Eczema confined to palms and dorsal aspect of hands are known as hand eczema and those restricted to palmar region alone is known as palmar eczema.

Hand eczema can be classified, based on the etiology, morphology and duration of the disease. But none of the single classification is completely satisfactory.

Table 2: Etiological Classification Of Hand Eczema[2]

Exogenous	Endogenous
a) Contact irritants • Physical : Cold/ dry air, constant friction. • Chemical :Occupational and household chemicals b) Contact allergens: PPD, nickel, rubber. c) Protein contact dermatitis d) Ingested allergens e) Secondary dissemination	• Atopic eczema • Idiopathic (eg: hyperkeratotic and pompholyx) • Psychosomatic : stress aggravates, but may not be causative.

MORPHOLOGICAL CLASSIFICATION OF ECZEMA[3]

1. Dyshidrotic eczema / Pompholyx
2. Hyperkeratotic eczema
3. Ring eczema
4. Finger tip eczema
5. Apron eczema
6. Recurrent focal palmar peeling
7. House wives dermatitis
8. Gut / slaughterhouse eczema
9. Patchy vesiculosquamous eczema
10. Chronic acral dermatitis

Table 3: Classification of Hand Eczema based on the Stages of disease[2]

STAGES/DURATION OF DISEASE	CLINICAL FEATURES
ACUTE	Erythema, edema, exudation, vesiculation.
SUBACUTE	Erythema, scaly or crusted papules or plaque
CHRONIC	Lichenification

ALLERGIC CONTACT DERMATITIS (ACD)

ACD is a delayed hypersensitivity phenomenon. It is the result of a T- cell mediated immune response to a defined allergen, resulting in dermatitis or the exacerbation of a pre-existing eczema.

Common allergens include chromate, rubber, chemicals, preservatives, nickel, fragrances, phenol and formaldehyde resins.

MECHANISM OF ALLERGIC CONTACT DERMATITIS

There are two stages in the development of contact dermatitis. [4]

1. Stage of induction

   Allergens of small molecular weight penetrates the epidermis and combines with a protein to become a complete antigen. This antigen activates the antigen presenting cells in the skin (langerhans cells and/or dermal dendrocytes) and migrate to the regional lymphnodes. During this process, the antigen presenting cells (APC) mature. In the regional lymph node, matured APC activates the naïve T-cells into specific T-cells. This specific T-cells clonally expand and express newer antigens(CLA) on their surface to become effector T-cells. With the help of these newer antigens, they enters the blood circulation and reaches the skin.

2. Stage of elicitation

   Langerhans cells in the sensitized individual releases various cytokines on re exposure to the same allergen. These cytokines attract large numbers of

effector T-cells from the regional lymph nodes to the skin, which elicitates the inflammation and produce contact dermatitis rapidly.

IRRITANT CONTACT DERMATITIS (ICD)

ICD is a severe eczematous reaction that results from single overwhelming exposure or a few brief exposure to irritants or caustic agents.

MECHANISM OF IRRITANT CONTACT DERMATITIS

Following an irritant contact, there is disruption of the epidermal barrier which results in keratinocyte damage. The damaged keratinocytes release various proinflammatory mediators such as IL-1 and TNF- A, that activate T-cells and further release of secondary cytokines from keratinocytes, fibroblasts and endothelial cells and perpetuates the inflammatory process. [5]

PROTEIN CONTACT DERMATITIS

It is a chronic or relapsing dermatitis commonly affecting fingertips. It is an allergen specific Ig E mediated type I hypersensitivity reaction. Incriminated proteins present in the foods (vegetables, grains, fruits) produce a urticarial and /or vesicular lesions within few minutes of contact. The lesion lasts for 3 hours. Housewives, food handlers and cooks frequently encounters this type of hand dermatitis. Skin prick test helps to diagnose this condition.[6]

ATOPIC HAND DERMATITIS

Filaggrin is an intracellular protein produced by the keratinocytes of stratum granulosum. It is one of the important structural proteins of cornified cell envelope. In the upper layer of epidermis, filaggrin protein dissociates to form natural moisturizing factor (NMF), which maintains the hydration of skin. Loss of function in the filaggrin gene(FLG) is the important risk factor for development of atopic dermatitis. [7]

Barrier desquamation is important to maintain the homeostasis of epidermis. It is achieved by balanced action of protease and protease inhibitors. SPINK protein inhibits serine protease in the skin. Loss of functional mutation in the SPINK gene results in excess serine protease activity and alteration of epidermal barrier. [8]

MORPHOLOGICAL PATTERN OF HAND ECZEMA

Dyshidrotic eczema / pompholyx

Pompholyx is an endogenous eczema. The name dyshidrotic eczema is a misnomer, because this type of eczema is not associated with hyperhidrosis and it does not arise from the sweat gland. This condition is acute in onset and intensively pruritic. [9]

FIGURE 1: MORPHOLOGY OF POMPHOLYX	
Deep seated vesicles that appear as 'sago grains'. Erythema and inflammation are conspicuously absent . Vesicles may coalesce sometimes to form a large bullae.	

The vesicles resolve spontaneously in 2 to 3 weeks with desquamation.

If present in palms, it is named as cheiropompholyx and in soles, it is called as podopompholyx. Half of the patients have family history of atopy and it is more common in summer .

Hyperkeratotic hand eczema

It present as chronic, hyperkeratotic, slightly erythematous, discrete plaque with well defined border. Deep, painful fissures are common over the surface. They typically affect the central palm and tends to spare dorsal hand and finger tip.[10] This type of hand eczema is usually resistant to treatment. Close differential diagnosis of this condition is palmar psoriasis. Psoriatic plaque elsewhere in the body is useful for differentiation.

Ring eczema

It is an irritant dermatitis commonly affecting young women and rarely seen in men.

FIGURE 2 : MORPHOLOGY OF RING ECZEMA	
Typically starts under a ring and spread to adjacent surface of middle finger and nearby area of palm.	

Transfer of the ring to other finger leads to early eruption of eczema in the new site. Patch test is negative for gold and nickel in these patients. The cause for this eczema is due to the cumulative effect of microtrauma and irritation of soap which accumulates beneath the ring. [11]

Finger tip eczema

Otherwise known as pulpitis, because it commonly affects the ventral surface of finger tips rather than dorsal surface. It can be an allergic contact dermatitis, irritant contact dermatitis or protein contact dermatitis.[12]

FIGURE 3: MORPHOLOGY OF FINGER TIP ECZEMA	
Dry and glazed pulps with painful cracks and fissures	

Apron eczema

This type of morphological pattern is seen in irritant, allergic or endogenous eczema. It is characterized by involvement of palmar aspect of two or more adjacent fingers and adjacent surface of palm which resembles apron. [13]

Recurrent Focal Palmar Peeling

This is considered as a milder form of pompholyx, but vesicles are absent.[14]

FIGURE 4:MORPHOLOGY OF RECURRENT FOCAL PALMAR PEELING	
Lesion begins as one or more white spots, then enlarge outwards in circular fashion producing a collarette of scales. Common site : Palms > Soles	

House wives dermatitis

Also known as wear and tear dermatitis /Dermatitis palmaris sicca/ Asteatotic hand eczema. This is common in persons who frequently immerse their hands in water and on contact with various irritants.[15]

FIGURE 5: MORPHOLOGY OF HOUSE WIFE ECZEMA	
Palmar skin of both hands are dry with superficial criss-crossed fissures. Pruritus and exudation are absent. More common in women than men.	

Gut/ slaughterhouse eczema

This type is common in persons working in slaughter house. It is characterized by transient vesicles starting from the web spaces and then spreading to sides. It is self resolving but frequently recurring. [16]

Patchy vesiculosquamous lesion

It is characterized by asymmetrical, irregular patchy, vesiculosquamous lesions on both hands.

Chronic acral dermatitis

This eczema is characterized by pruritic, papulovesicular lesions of hand and seen in patients with elevated serum IgE but without any manifestations of atopy. [17]

Juvenile plantar dermatosis/ Sweaty sock dermatitis.

It is more common in boys, in the age group of 3-15 years. Non-porous foot wears aggravates this condition. It is self resolving between 12-16 years of age. Bilateral, symmetrical, shiny, erythematous, fissures on the weight bearing surface of the feet with sparing of interdigital space is the classical morphology of this condition. [18]

PAPULOSQUAMOUS DISORDERS

PALMOPLANTAR LICHENPLANUS

Lichen planus(LP) is a benign, pruritic, idiopathic inflammatory disorder which can affect the skin, nail, mucous membrane and hair. If it affects palms and soles, it is known as palmoplantar lichen planus(PPLP)

There are several variation in the clinical presentation of palmoplantar LP.

FIGURE 6: HYPERKERATOTIC PPLP	
Firm, well-defined, scaly, pruritic, yellowish papule or plaque on the insoles and sometimes over the palms[19]. It may be unilateral or bilateral. Most common site in sole is medial plantar arch and in palm thenar, hypothenar eminence and central part of palm are equally affected.	

Table 4: Clinical variants of PPLP

OTHER CLINICAL VARIANTS	DESCRIPTION OF LESION
Erythematous scaly variant of PPLP	Well defined, erythematous hard papule or plaque with smooth or slightly scaly surface.[20]
Vesicular PPLP	Multiple, discrete erythematous, well defined, intraepidermal vesicles. [21]
Psoriasiform / eczematous PPLP	Keratotic scaly plaque with fissures simulate psoriasis or eczema of palms and soles.
Erosive and ulcerative variant of PPLP	In this rare severe painful variant the lesion heal with scarring, leading to contracture or webbing of fingers or toes.
Hyperpigmented macules of PPLP	Hyperpigmented scaly macule simulate tinea nigra.[20]
Vesicle like papule	Multiple violaceous papules with pseudo-vesicular appearance [22]
Hyperkeratotic plaque with pits	Pitted hyperkeratotic plaques with violaceous border on the palms and soles.[22]
PPLP with umbilicated papule	Multiple umbilicated papules on the palms and soles. [23]

PALMOPLANTAR PSORIASIS

Psoriasis is a T cell mediated, chronic inflammatory disorder of skin. It is characterized by well defined, erythematous papule or plaque with silvery white scales on the surface.

Psoriasis in palms and soles present in four ways [24]:

FIGURE 7 : CLASSICAL PLAQUE PSORIASIS	
Well defined erythematous scaly plaque that stop at the junction of palm and wrist. Concurrent skin lesion of dull red plaque on the knuckles are characteristic of psoriatic etiology.	

HYPERKERATOTIC ECZEMA TYPE [10]
Poorly defined thickened, scaly patch with fissures resembling eczema

FIGURE 8 : PALMOPLANTAR PUSTULOSIS [24]	
Well defined deep seated pustules and hemorrhagic vesiculopustules over erythematous scaly plaque is the commonest presentation. The pustules dry up leaving a brown punctuate scabs. Symmetrical involvement of hand and/or sole is characteristic.	

FIGURE 9 : PSORIATIC KERATODERMA	
Diffuse scaling and thickening of skin	

INFECTIONS

PITTED KERATOLYSIS

Also known as keratolysis plantare sulcatum .

It is a bacterial infection caused by corynebacterium, micrococcus(kytococcus sendentarius), dermatophilus congolensis, actinomyces .

Under prolonged hyperhidrosis, occlusion and contact with wet surface, the bacteria proliferates and release proteinase that destroys the stratum corneum. Sulphur compounds such as thiols and thiol esters were responsible for malodour. [25]

FIGURE 10:MORPHOLOGY OF CLASSICAL PITTED KERATOLYSIS	
Multiple crater shaped pits which coalesce to form irregular erosion. The lesion is asymptomatic and malodourous Common site: Weight- bearing plantar surface.	
FIGURE 11: INTERDIGITAL TYPE OF PITTED KERATOLYSIS	
Well defined erosions between web spaces [26]	

SECONDARY SYPHILIS

Syphilis is a sexually transmitted infection caused by Treponema pallidum. The clinical course of syphilis is divided into four stages. They are primary, secondary, latent and tertiary syphilis. Chancre characterizes the primary stage. Cutaneous lesions of secondary syphilis are polymorphic. They are macular, papular, follicular, lichenoid, psoriasiform, corymbiform, Frambesiform, pustular and pigmentary.

FIGURE 12:MORPHOLOGY OF PAPULAR SYPHILIDE	
• Papular syphilide is the commonest and characteristic lesion in syphilis and it has predilection for palms and soles. • Multiple, discrete erythematous papule with peripheral collarette of scale is the commonest presentation.[27]	

INTERTRIGO

The word 'intertrigo' comes from the latin word inter- between and terere- to rub.

There will be poor circulation of air between webspaces, so water retained in the web spaces overhydrate the epidermis, which easily macerate on trivial trauma or repeated friction.

Webs spaces of lateral toes are commonly affected.

RISK FACTORS

1.Closed toes, 2. Tight fitting shoes, 3. Obesity, 4. Diabetes.

Table 5:Causative pathogenic micro organisms[28]	
Gram positive bacteria	S.aureus, S.saprophyticus, Group A beta-hemolytic streptococci
Gram negative bacteria	P.aeruginosa E.coli P.mirabilis M.morganiir
Fungal	C.albicans, C.krusei, C.tropicalis, C.dubliniensis, C.parasilosis, C.krusei F.soloni, F. oxysporum.

Clinical features :

Oval, macerated,whitish plaque with central fissure that may extend to the lateral border[29]

PALMOPLANTAR WART

Wart is an infectious disease caused by Human papilloma virus. The morphological variants of warts are common wart, plane wart, filiform wart, palmoplantar wart, anogenital wart, pigmented wart..

Two types of palmoplantar warts are present [31]

Table 6: **Difference between superficial and deep plantar warts**

Type of wart	**Superficial plantar warts (Mosaic wart)**	**Deep plantar warts (Myermecia wart)**
Causative	HPV -2	HPV-1
Predisposing factor	Hyperhidrosis	Pressure points and foot deformities
sites	Palms and soles equally affected	Soles predominantly affected
symptoms	painless	Painful during walking
Clinical feature	Closely placed multiple warts which coalesce to form large plaque	Barely visible on the surface, sharply defined deep seated firm hyperkeratotic lesion surrounded by a thick collar Always remain discrete

HAND FOOT MOUTH DISEASE

Acute infection caused by coxsackievirus A16, A6 and enterovirus 71. Children less than 10 years are most often affected. Incubation period varies from 3-6 days. Initially patient has prodromal symptoms which is followed by enanthem over the tongue and buccal mucosa. The disease is self resolving and management is supportive.

FIGURE 13:MORPHOLOGY OF HFMD LESION OVER PALMS	
Erythematous macules, papules and flaccid vesicles with surrounding erythema over the palms, soles, margins of the heel, palmar surface of fingers.[31]	

DERMATOPHYTOSIS

Dermatophytosis is an infectious disease of skin, hair and nail caused by a group of filamentous fungi known as dermatophyte. Dermatophyte have three genera :1) Trichophyton, 2)Epidermophyton, 3) Microsporum.

TINEA PEDIS

The term tinea pedis is used for dermatophyte infection of the feet.

CHRONIC INTERDIGITAL TINEA PEDIS	
Causative :T.rubrum, T.mentagrophyte, E.floccosum	Erythema, erosion and maceration of web space and adjacent surface of foot.[32]

CHRONIC HYPERKERATOTIC TYPE/ MOCASSIN TYPE OF TINEA PEDIS

Causative organism :T.rubrum

- Diffuse hyperkeratotic scaling which extend to involve the heels, medial and lateral aspect of soles.
- Usually bilateral and distribution is patchy or involve entire weight bearing area.

VESICULOBULLOUS TYPE/ INFLAMMATORY TYPE OF TINEA PEDIS

Causative: T.mentagrophyte var. interdigitale

- Multiple tense vesicle and vesiculopustules rupture to form collarette of scales.
- Usually seen in non weight bearing areas such as insole and digital cleft.
- Spontaneous resolution can occur.

ULCERATIVE TYPE OF TINEA PEDIS

Causative :T.rubrum, T.mentagrophyte var.interdigitale

- Maceration and deep ulceration in the web space and larger areas of soles .
- Malodour is common, due to secondary bacterial infection.[32]

TINEA MANUUM –

Tinea manuum refers to dermatophyte infection of hands, caused by T.rubrum, T.mentagrophyte & E.flocossum. Infection in the dorsum of hands resembles tinea corporis but the clinical picture is different in palms and web spaces due to absence of sebaceous glands.

Hyperkertotic type is the commonest presentation.

FIGURE 14: MORPHOLOGY OF HYPERKERATOTIC TYPE OF T.MANUUM	
diffuse fine white scales with accentuation in the creases	

Other variants like vesiculobullous, pustular and papular types are also seen.

Dermatophytosis is differentiated from eczema by concurrent involvement of nails(T.unguium).

ID REACTION

It is a sensitization reaction to infective foci in the body. The foci of infection may be bacterial, viral or fungal. It is characterized by small, recurrent vesicles or large bullae and more common in palms and innerside of the fingers.

Criteria to diagnose Id reaction:

1. Recovery of microorganism from the primary foci of infection.
2. No microorganism identified from the id eruption site.
3. When the primary infectious foci is cured, id reaction also will be cured spontaneously.

CORNS

Corn is a circumscribed, cone shaped, hyperkeratosis of the skin. The size of this conical mass varies from 1mm to 2 cm . Apex of the corn presses the underlying structure and produce severe pain. On the surface of the corn dermatoglyphics are lost.

PREDISPOSING FACTORS :

1.Poorly fitting occlusive footwares. 2. Bony deformities like spurs

3. Barefoot walking 4. Diabetes

Types

1. Hard corn
2. Soft corn
3. Vascular corn / clavus vasculare
4. Neurofibrous corn
5. Seed corn

1.HARD CORN

Well circumscribed, usually occurs on the plantar surface of the sole. Surface is smooth and convex. When the upper portion of corn is shaved off, the hardest central white core is exposed. This central core presses upon the underlying nerves and causes severe pain.

2.SOFT CORN

It is also called as clavus molle. Most common site is interdigital spaces of the toes. It clinically appears as white, soft, soggy and macerated lesion.[34]

3.VASCULAR CORN

It is otherwise known as clavus vasculare. Most common site is on the sides of the foot along the junction of the plantar and dorsal surface, it also present on distal ends of 4^{th} and 5^{th} toe. It is a type of hard corn, in which beneath the hyperkeratotic mass, capillaries are seen. Vascularity is presumed to be result of repeated trauma to the corn. These corns are painful.

4.NEUROFIBROUS CORN

It is an advanced type of hard corn. There is underlying fibrosis and hypertrophy of nerve filaments and is associated with severe spasmodic pain.

5.SEED CORN

It is also called as clavi miliarae. They appear as multiple, asymptomatic, discrete, tiny 1-3 mm sized, yellowish white papules on the plantar surface of the heel and the fifth toe joint.

CALLUS

It is a circumscribed hyperkeratosis of the skin with preserved skin markings and commonly occurs at the site of contact with pressure/ friction.

Central part of the callus is thickest and it gradually tapers at the periphery and merges with the normal skin. It is usually asymptomatic but become painful when fissured. It is produced by repeated or constant friction at a particular site. Colour of the callus varies from yellow to brownish black. It becomes macerated on contact with water for prolonged time.

TABLE 7 : Foot Deformity & Callus Position

DEFORMITY [35]	**LOCATION**
Hallux valgus	Submetatarsal head & medioplantar hallux
Cavus foot	Submetatarsal head 1&5
Tailors bunion	Submetatarsal head 5
Pes planus	Medioplantar heal
Charcot neuroarthropathy	Midsole

TABLE 8:Difference between Callus, Corn and Wart.[36]

	CALLUS	CORN	WART
EDGE	Poorly defined	Well defined	Well defined
SITE	Under bony prominence	Under bony prominence	May or may not be under bony prominence
PAIN ON PRESSURE	Painless	Pain on vertical pressure	Pain on horizontal pressure
ON PARING	Disappear	Central white core	Brown colored spots due to thrombosed vessels
DERMATOGLYPHIC MARKING	Absent	Present	Present

DISORDERS OF KERATINIZATION

PALMOPLANTAR KERATODERMA (PPK)

It is also known as palmoplantar keratosis or 'keratosis Palmaris et plantaris'.

PPK is a heterogenous group of disorder characterized by excessive thickening of palms and soles.

It is divided into inherited or acquired.

PPK is classified clinically as diffuse, focal, striate or punctate and develops either in isolation or in association with other cutaneous and extracutaneous manifestations.

DIFFUSE PPK

Uniform thickening of palmoplantar surface is seen.

Table 9:Non Transgradient, Autosomal Dominant PPK		
Types of PPK	Unna-Thost PPK [37]	Vorner PPK [38]
Mutation (keratin)	K1,K10	K1,K9
Age of onset	2 -5 years	0 -3 years
Clinical appearance	symmetrical, well defined 'waxy hyperkeratosis' involving entire areas of palms and soles.	well defined, symmetrical, yellow hyperkeratotic lesion with dirty skin appearance over palms and soles
Histopathology	Non-epidermolytic PPK	Epidermolytic PPK

Table 10:Autosomal Dominant – Diffuse PPK		
DISEASE	**MUTATION**	**CLINICAL APPEARANCE**
Vohwinkel syndrome, classic	GJB2 (connexin 26)	Honey comb like keratosis of palms and soles, starfish-shaped keratosis over knuckles of the fingers, pseudo-ainhum, sensorineural deafness, scarring alopecia, spastic paraplegia[39]
Vohwinkel syndrome, Variant	Loricirin	Similar to classic type, Non-bullous congenital ichthyosiform erythroderma and progressive symmetric erythrokeratoderma are prominant but no sensorineural deafness
Bart-Pumphrey syndrome	Connexin 26	Diffuse PPK with accentuation in the crease and grainy surface, Knuckle pads, leukonychia and hearing loss[40]
Huriez syndrome		Congenital scleroatrophy of distal extremities, PPK and hypoplastic nail changes[41]
Clouston syndrome	GJB6 (Connexin30)	Diffuse papillomatous PPK, dystrophic nail and hypotrichosis

Table 11:Autosomal Recessive – Diffuse PPK.		
Mal de melada PPK	SLURP-1	Transgradient PPK in glove and stocking distribution, hyperhidrosis with malodour and secondary infections,constriction band in the fingers, pseudo ainhum, thickened nail, perioral erythema, psoriasiform plaque over knee & elbow.
Nagashima – type PPK	?	Similar to milder form of mal de melade type of PPK, but psoriasiform plaque and pseudo-ainhum is absent.
Papillon – lefevre syndrome	Cathepsin C	punctiform accentuation on palmar crease, peridontitis, gingivitis, psoriasiform plaque over knees, elbow and interphalangeal joints[42]
Naxos syndrome	Plakoglobin	woolly hairs at birth, PPK develop at first year of age and cardiac arrhythmias, right heart failure manifest during puberty.[43]

FOCAL TYPE :

In this type, skin thickening and hyperkeratosis are localized to pressure points and sites of recurrent friction

1. Brunauer-fohs-siemens syndrome
2. Focal palmoplantar and gingival keratosis
3. Focal keratoderma with oral leukokeratosis

4. Pachyonychia congenita 1&2: oral leukokeratosis, sensory neural hearing loss, natal teeth, follicular keratotic plaque.
5. Howel Evans syndrome : Focal PPK associated with esophageal carcinoma
6. Carvajal syndrome : woolly hair + left ventricular cardiomyopathy+ woolly hair.
7. Richner hanhart disease : herpetiform corneal erosions, mental retardation, PPK.

PUNCTATE TYPE

Multiple small, hyperkeratotic papules, spicules, or nodules on the palms and soles. It involves the entire palmoplantar surface or may be restricted to certain location.

1. Buschke – Fischer type (discrete hard keratotic papule, some of them become crateriform)[44]
2. Punctate keratoderma of palmar crease
3. Marginal papular acrokeratoderma
4. Schopf- schulz passarge (hidrocystoma, PPK, hypotrichosis, hypodontia)
5. Punctuate PPK with spastic paralysis/ sebaceous hyperplasia/ lipomata

Table 12:Acquired Palmoplantar Keratoderma

Keratoderma climactericum	Obese and hypertensive postmenopausal women . Thickening of skin varying from mild scaling to severe thickening and transgradient is absent.
Internal malignancy	Acrokeratosis paraneoplastica of bazex - squamous cell carcinoma of upper gastrointestinal tract. Tripe palm - gastric and pulmonary carcinoma
Inflammatory and circulatory disorders	Psoriasis, keratoderma blennorrhagicum, contact dermatitis, pityriasis rubra pilaris, palmoplantar lichen planus[45]
Infectious causes	Norwegian scabies, hyperkeratotic syphilids, yaws, confluent warts, tinea manuum
Drugs	Arsenic, halogenated weed killers, hypersensitivity due to iodine, glucan, quinacrine, methyldopa, flurouracil, bleomycin and hydroxyurea
Systemic disease	Myxoedema, diabetes and mycosis fungoides

PALMAPLANTAR HYPERHIDROSIS

Eccrine sweat gland secretion is under the control of autonomic nervous system.

Sympathetic pathway of sweat control consists of five neuronal communications

1. Neuron connecting cerebral cortex to hypothalamus
2. Neurons connecting hypothalamus to medulla
3. Fibers crossing in the medulla to opposite lateral horn of spinal cord
4. Lateral horn to sympathetic ganglion
5. Sympathetic ganglion to sweat glands as post ganglionic C fibers[46]

Excess sweat secretion is controlled by a negative feedback from sweat gland to hypothalamus.

Dysfunction in the above pathway may lead to hyperhidrosis

Palmoplantar hyperhidrosis may be continuous or phasic. When continuous, it is not related to emotional stress. But, phasic hyperhidrosis clearly associates with emotional stress.

Table 13: Diagnostic criteria of Hyperhidrosis[47]

MAJOR CRITERIA	MINOR CRITERIA
Visible, exaggerated and localized sweat, lasting at least six months, without apparent cause	1. Bilateral and symmetrical involvement 2. Impairment in daily activities 3. Onset <25 years of age 4. Absence of sweating in sleep 5. Presence of family history 6. Frequency : minimum one episode per week. [47]

For diagnosis: major criteria + atleast two of the minor criteria will be present

PIEZOGENIC PEDAL PAPULE

Piezogenic pedal papule(PPP) is herniation of fat into dermis. It present as a yellowish or skin coloured papule or nodule on the medial and lateral surface of the heel. The lesion becomes prominent, when the patient stands flat on his/her feet and disappears if the pressure is removed. Unless if the herniated fat tissue contain blood vessels or nerves, this condition is painless. It is usually not associated with any hereditary disorders, but association of PPP with Ehlers danlos syndrome, Prader willi syndrome and rheumatoid arthritis is reported.[48]

TALON NOIR

Talon noir, also known as ‘calcaneal petechiae’ . It is a harmless, asymptomatic, trauma induced darkening most commonly seen in posterior or posterolateral aspect of soles. This condition is often seen in volley ball, basket ball and tennis players. Due to shearing forces, papillary dermal blood vessels are ruptured which leads to leakage of blood into the epidermis.[49]

ACRAL ERYTHEMA

Acral erythema otherwise known as ‘hand foot syndrome’ or ‘palmoplantar erythrodysesthesia. It is a common cutaneous drug reaction to variety of chemotherapeutic agents such as doxorubicin, 5-fluoracil, docetaxel and cytarabine. It manifests as painful erythema,paresthesia, swelling and even blistering of palms and soles during cancer treatment. It is a dose dependent skin reaction, both cumulative dose and peak plasma concentration of the drug are important for the severity of skin lesion.[50]

TROPHIC ULCER

Trophic ulcer also known as mal perforans or neuropathic ulcer or neurogenic ulcer.

Causes for neurogenic ulcers

1. Hansen’s disease
2. Diabetic neuropathy
3. Alcoholic polyneuropathy
4. Syringomyelia

5. Spina bifida
6. Pressure ulcer in paraplegics

Trophic ulcer of leprosy

Anaesthesia of the foot is the most important factor in the formation of plantar ulcer in leprosy.[51]

Mechanisms that produce ulcer in insensitive foot.

(1) Continuous pressure leading to lack of blood supply to the tissues causing necrosis.

(2) Concentrated high pressure, produce cutting or crushing of the tissues by mechanical violence;

(3) Heat or cold induced induced injury in the insensensitive foot such as burning or frost bite;

(4) Inflammation and autolysis of tissues following repeated mechanical stress of moderate degree.[52]

Stages in the formation of trophic ulcer.

1. **Stage of threatened ulcer**

   In this preulcerative stage, aseptic inflammation starts in the subcutaneous layer of sole following repeated mechanical stress. Usual sites are over the bony prominence such as metatarsal head. The affected tissue is tender on deep pressure and splaying of toes occur due to tissue edema.

2. **Stage of concealed ulcer**

   In this stage, inflamed tissues undergo necrosis. This necrotic tissue later liquefied and mixed with blood and present as blisters over the skin surface.

3. **Stage of open ulcer**

   In this stage, the blisters break open and the necrotic area will become exteriorized.[52]

Every neuropathic ulcer pass through the following stage before become indolent.

1. Stage of acute ulcer
2. Stage of repair
3. Stage of recurrent ulcer
4. Stage of chronic ulcer

Most common sites of ulceration on the soles are metatarsal heads in the forefoot, followed by heel and lateral border.

Table 14: Differentiation between acute and chronic trophic ulcer

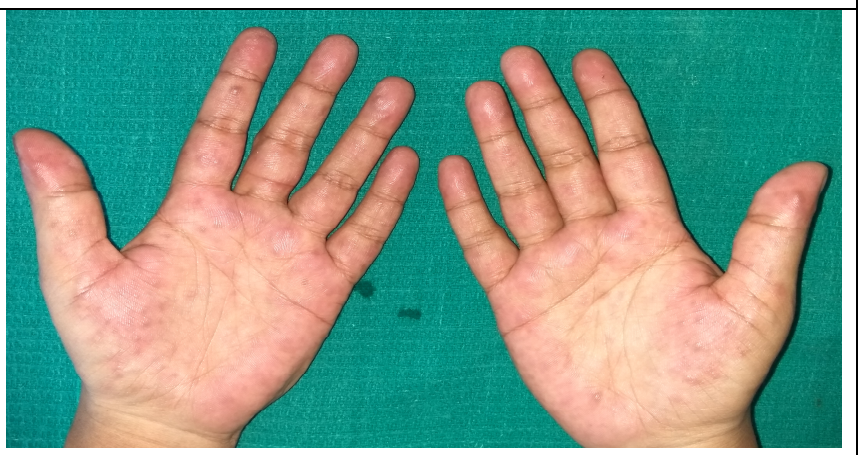
ULCER CHARACTER	ACUTE ULCER	CHRONIC ULCER
Border	edematous border	hyperkeratotic border
Floor covered by	necrotic tissue	pale unhealthy granulation
Discharge	purulent or serosanguineous discharge	scanty discharge
Association	lymphadenitis, fever and polymorphonuclear leuckocytosis.	Absent

ERYTHEMA MULTIFORME

Erythema multiforme(EMF) is an acute, self-limited, cell mediated hypersensitive reaction to infections and drugs. Herpes simplex infection is the most common cause for EM. Apart from herpes simplex many bacterial, viral, fungal infections, various drugs, malignancies and autoimmune disorders may act as a trigger for EM.[53]

Clinical classification of EM

1. EM major
2. EM minor

FIGURE 15: MORPHOLOGY OF EMF LESION	
Acrally distributed,typical or atypical targetoid lesion with concentric colour variation.	

The diagnosis is usually based on clinical findings alone.

TRIPE PALM

Yellowish, velvety thickening with increased rugosity and dermaglyphic pattern present over the palm. It is one of the paraneoplastic manifestations.

Tripe palm alone is seen in lung cancer, tripe palm with acanthosis nigricans is associated with gastric cancer.[54]

POROKERATOSIS PLANTARIS PALMARIS ET DISSEMINATA(PPPD)

Porokeratosis plantaris palmaris et disseminata , starts in the adolescence. It is characterized by small painful or pruritic keratotic papules that appears initially over palms and soles, and later becomes generalized. Classical PPPD lesions are annular than punctuate.[55]

PUNCTATE POROKERATOSIS

Punctuate porokeratosis usually starts in the 2nd to 3rd decade of life. Lesions appear as spiny keratotic papule or punctuate lesions confined to palms and soles with accentuation over the creases. Absence of involvement of other parts of body is the characteristic feature. [56]

DYSHYDROSIFORM BULLOUS PEMPHIGOID

It is a localized clinical variant of bullous pemphigoid, characterized by vesiculobullous lesion over palms and soles. In majority of patients, the lesions are confined to palms and soles, but in few cases it may progress to generalized form.[57]

ACRAL LENTIGENOUS MELANOMA

Acral lentigenous melanoma is the commonest type of melanoma seen in black skinned individuals. It commonly presents over the ventral aspect of palms, soles and subungual region. The lesion starts as a brown to black macule, with radial outgrowth over months or years, followed by dermal invasion. Due to delay in diagnosis, ALM has a poor prognosis.[58]

AIM & OBJECTIVE OF THE STUDY

AIM :

To study the dermatoses affecting the palms, soles or both and their epidemiological aspects like age, sex, distribution and the frequency of involvement.

OBJECTIVES OF THE STUDY :

1) To study the epidemiology of palmoplantar dermatoses.
2) To study the frequent site of involvement of various palmoplantar dermatoses
3) To study the clinical features of various palmoplantar dermatoses

MATERIAL AND METHODS:

Study design

This is a clinical, prospective, cross sectional, observational, open labelled single group study.

Study population and Study period

A total of 200 patients who presented to Department of Dermatology, Coimbatore medical college hospital during the period of June 2017 to May 2018 were included in this study.

Inclusion criteria :

Patients who are attending the dermatology OPD with complaints primarily pertaining to palms and soles, irrespective of age, sex and immune status.

Exclusion criteria:

1. Patients who were already been diagnosed and on treatment for palmoplantar dermatoses.
2. Patients who had not given written consent for participation in the study.

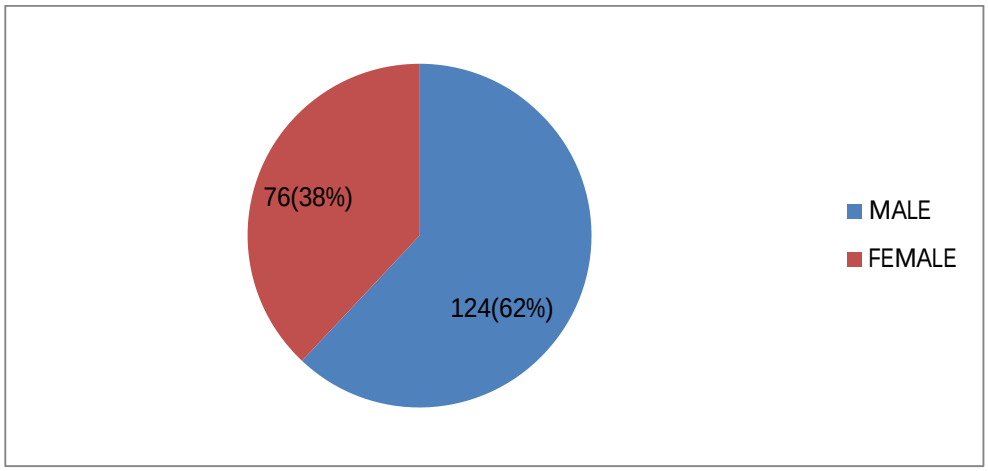
Methodology

A total of consecutive 200 patients with disease related to palms and/or soles were recruited in this study. Demographic details such as age, sex, occupation were recorded in all the participants. A detailed history regarding duration of illness, previous treatment, similar illness in the family and any relevant co morbidities were also recorded. General and dermatological examination were done for all. Palms and soles were examined in detail. For scaly lesions wet mount and 10% potassium hydroxide mount were done and for pustular lesions Gram stain was done. Skin biopsy was taken for some cases.

SEX DISTRIBUTION

Out of the 200 patients included in our study, 62%(124) were males and 38%(76) were females. The male to female ratio was 1.6:1.

Chart 1: Sex Distribution in Palmoplantar Dermatoses



AGE DISTRIBUTION

The maximum number of patients in both sexes were in the economically most active age group of 17-40 years (62.5%), second highest was observed in the age group of 41-60 years and least number of patients were in the age group of 6-10 years.

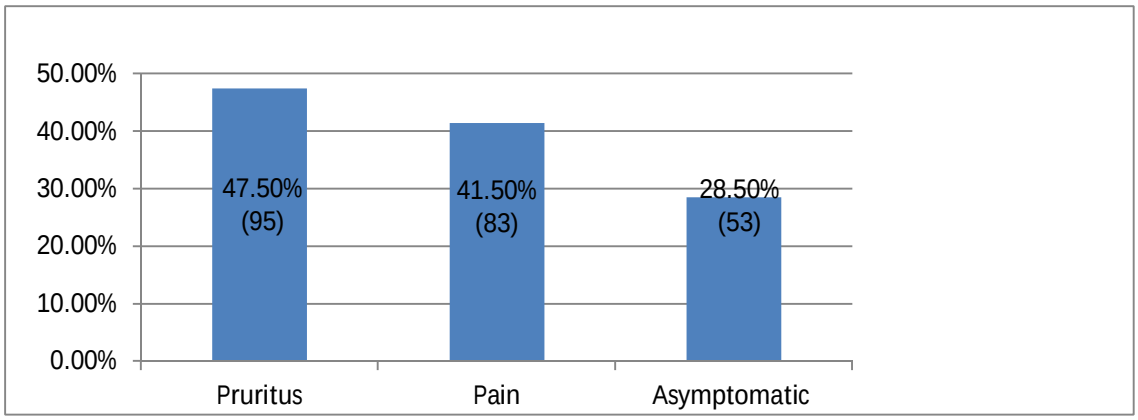
Table 15 : Age wise distribution of Palmoplantar Dermatoses

AGE GROUP (IN YRS)	MALE	FEMALE	TOTAL	PERCENTAGE
0-5	4	0	4	2%
6-10	2	0	2	1%
11-16	5	2	7	3.5%
17-40	68	43	113	62.5%
41-60	42	29	69	34.5%
>60	3	2	5	2.5%
Total	124	76	200	100%

SYMPTOMS

Pruritus was the commonest symptom observed in 47.5% of patients, followed by pain in 41.5%.

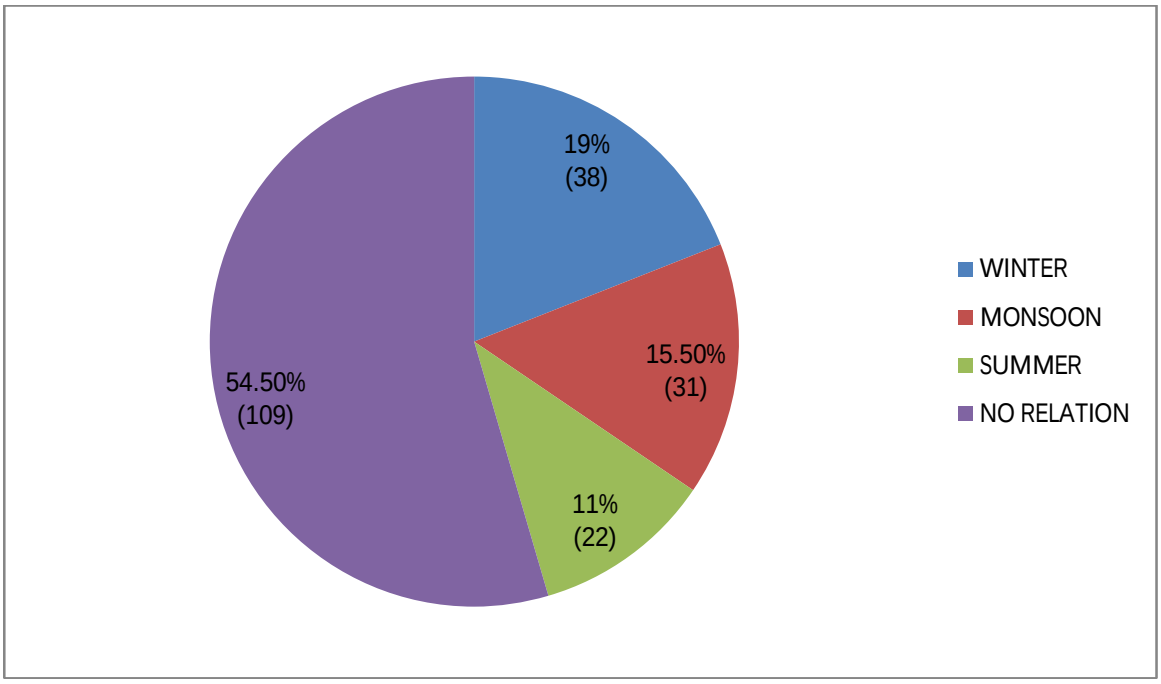
Chart 2: Symptoms in Palmoplantar Dermatoses



SEASONAL VARIATIONS

54.5% of patients with palmoplantar dermatoses had no seasonal variation of symptoms. Winter exacerbation of symptoms was noted in 19% of patients.

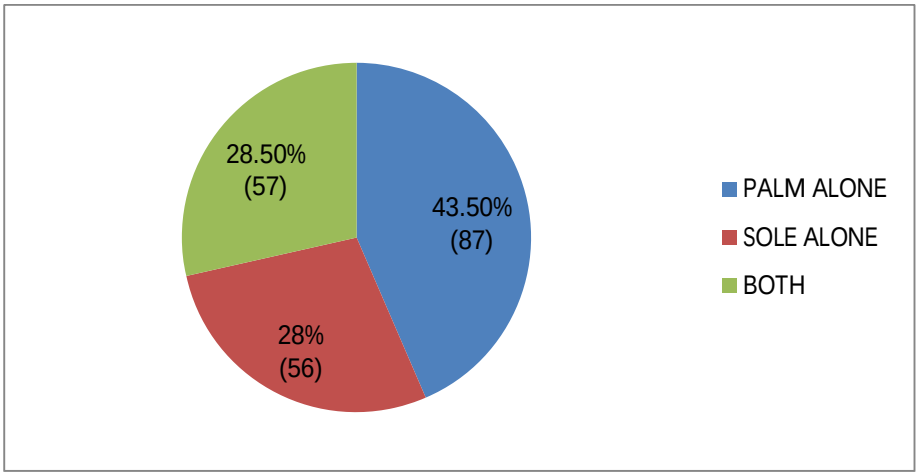
Chart 3: Seasonal Variation in Palmoplantar Dermatoses.



PATTERN OF INVOLVEMENT IN PALMOPLANTAR DERMATOSES

Palmar region was the most commonly affected site, it was involved in 72% of patients and palms alone were affected in 43.5% of cases. Both palmar and plantar involvement were seen in 28.5% of patients.

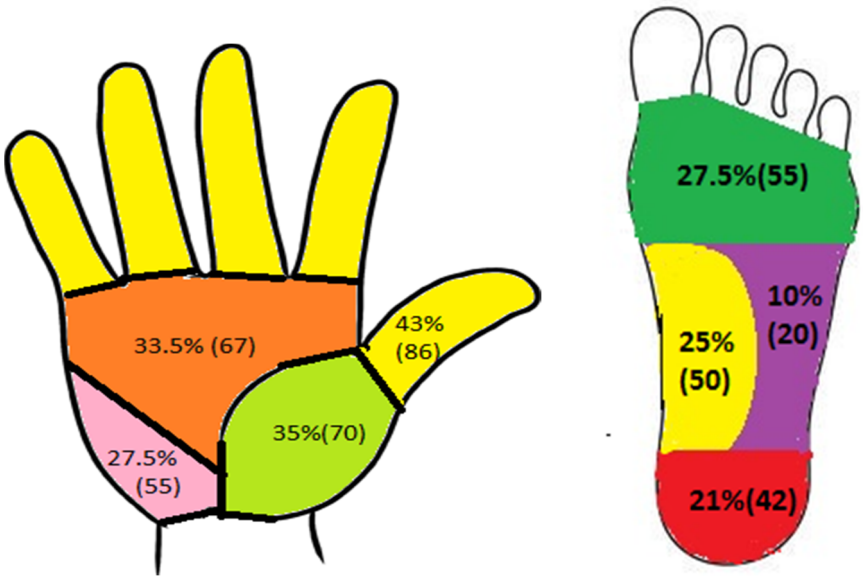
Chart 4:Localization and Pattern of Involvement in Palmoplantar Dermatoses



DISTRIBUTION OF LESION OVER PALMS AND SOLES

In the palmar dermatoses, fingers(43%) were most commonly affected; followed by thenar region(35%). Least commonly affected site was hypothenar region in 27.5%.

Diaghram 16: Distribution of Lesions over Palms and Soles in Palmoplantar Dermatoses.

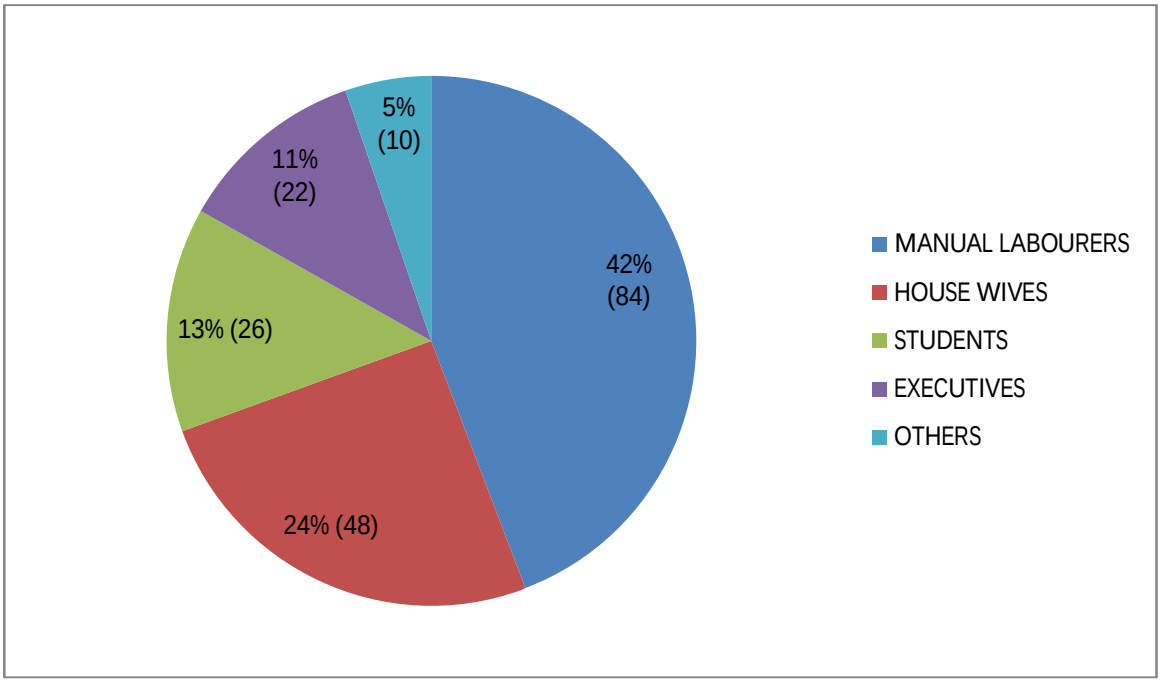


In the plantar region, metatarsal area(27.5%) was most frequently affected; followed by insole and heal.

OCCUPATION

Majority of patients with palmoplantar dermatoses were manual labourers(42%), followed by house wives in 24% of cases.

Chart 5: Occupational Distribution of Palmoplantar Dermatoses.

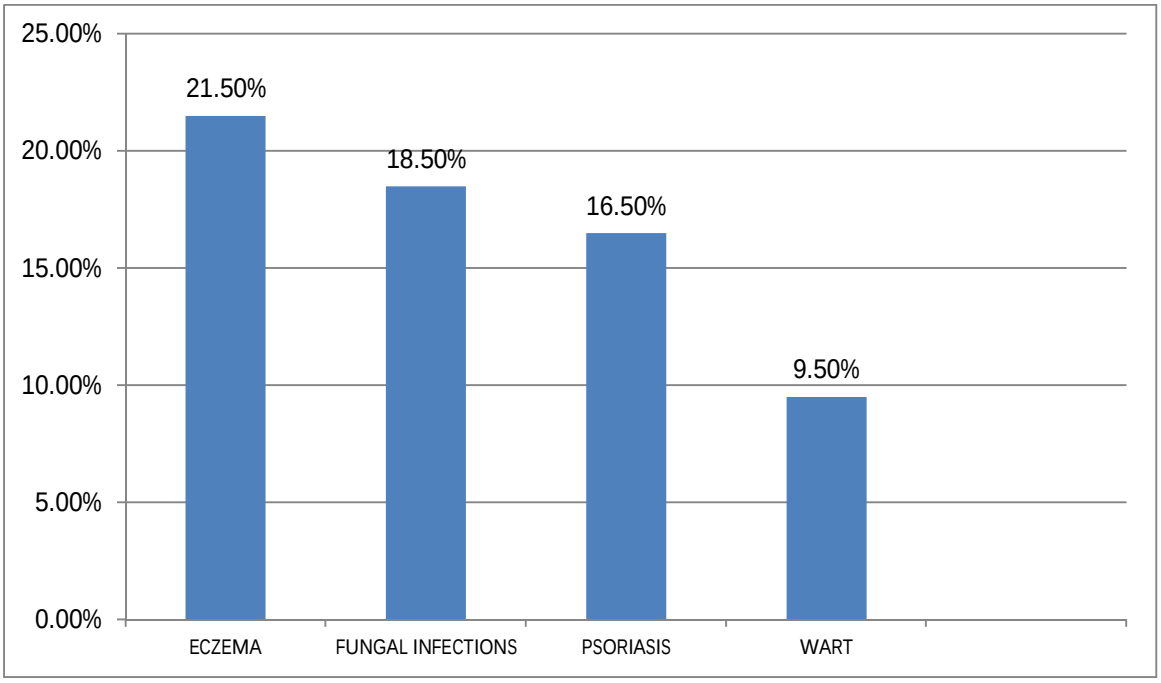


Palmoplantar dermatoses was observed highest in manual labourers among males and house wives among females.

Incidence of various palmoplantar dermatoses

Eczema was the most common palmoplantar dermatoses seen in 21.5% of patients, followed by fungal infections in 18.5% and psoriasis in 16.5%.

Chart 6: Incidence of various palmoplantar dermatoses



ECZEMA

Total number of patients affected by eczema were 43.

Eczema was observed highest in the economically productive age group of 17-40 years(51%) and second highest was observed in the age group of 41-60 years(33%).

Out of 43 cases, 70% were males and 30% were females.

The male to female ratio was 2.3: 1.

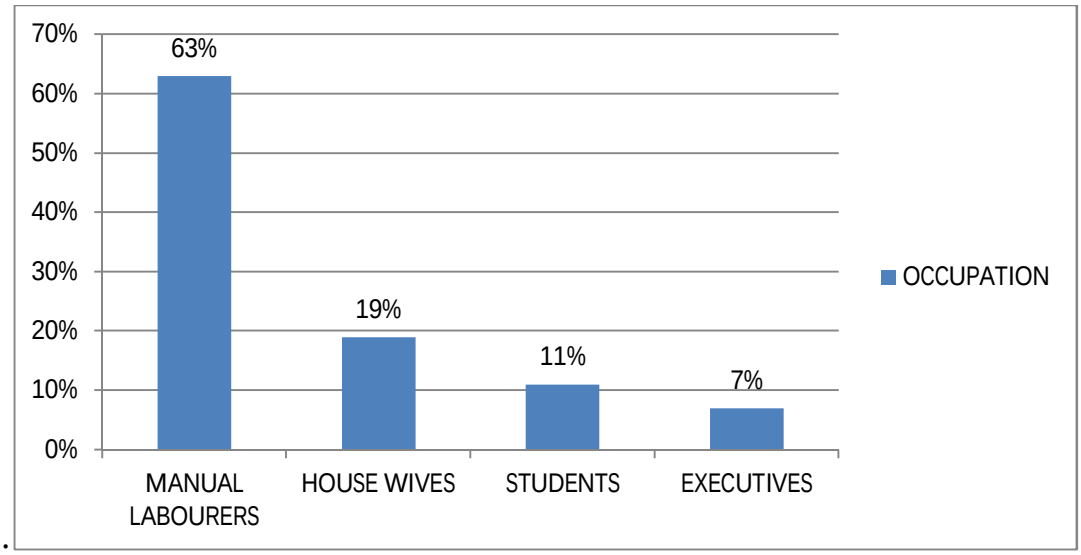
Table 16 : Age and Sex wise Distribution of Palmar Eczema.

AGE GROUP	MALE	FEMALE	NUMBER OF PATIENTS	PERCENTAGE
17-40 years	15	7	22	51%
41-60 years	8	6	14	33%
Others	7	0	7	16%
TOTAL	30(70%)	13(30%)	43	100%

OCCUPATION

Majority of patients (63%) were manual labourers and house wives were second commonest people affected (19%). Least commonly affected were executives.

Chart 7: Occupational Distribution of Palmar Eczema.

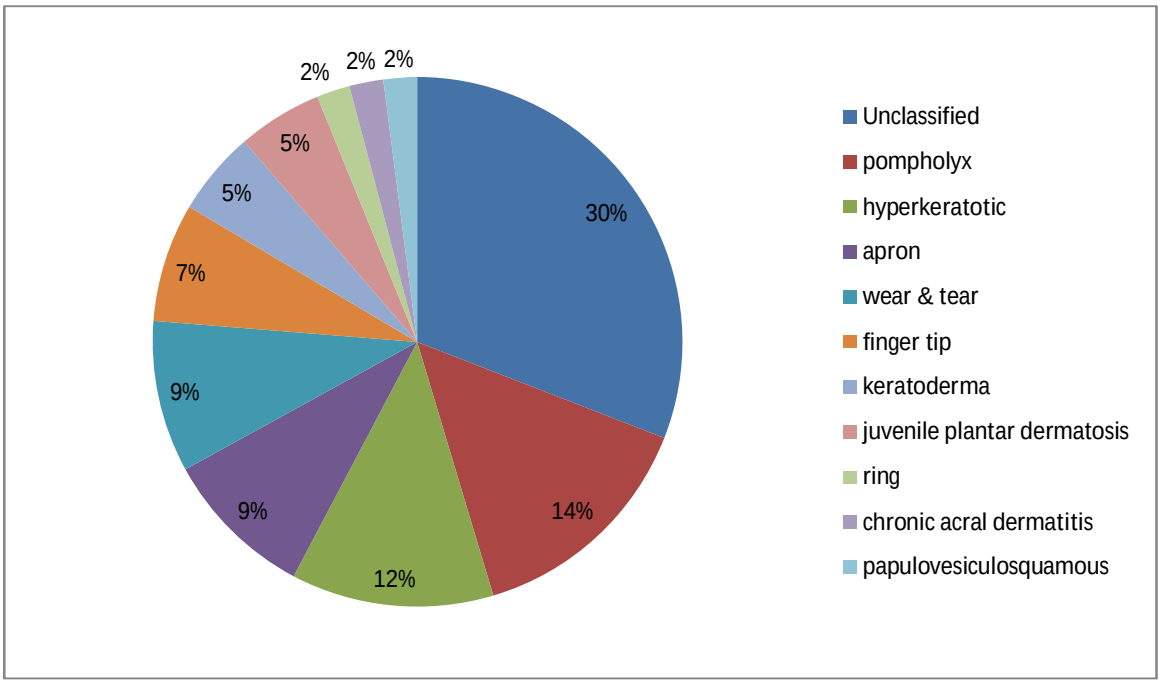


81.3% of patients reported pruritus as the major complaint.

MORPHOLOGICAL TYPES

14% had pompholyx, 12% had hyperkeratotic eczema, 9% had apron and wear and tear eczema each, 7% had finger tip eczema and 30% could not be classified into any specific category.

Chart 8: Distribution of various Morphological Types in Palmar Eczema

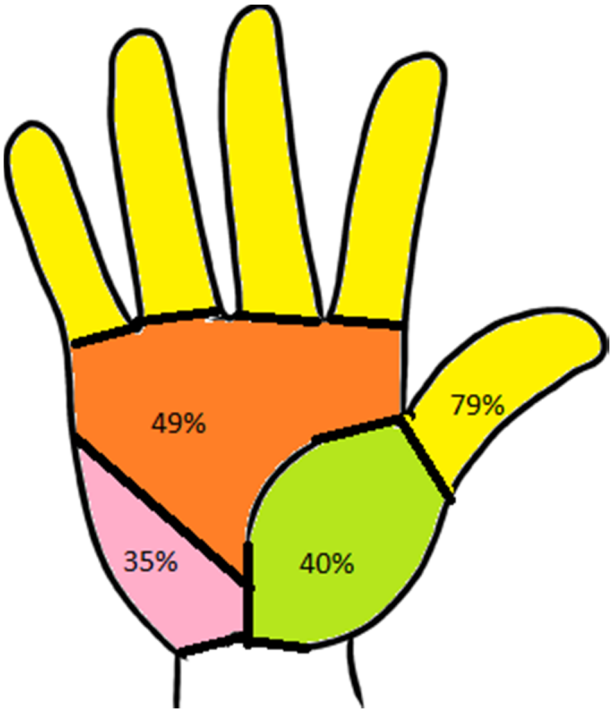


.Among the 43 patients of hand eczema,51.6%(17) of the patients had positive history of atopy.

DISTRIBUTION OF ECZEMA

The most common involved site was fingers (79%) and the second most common site was central palm (49%).

FIGURE 17 : DISTRIBUTION PATTERN OF ECZEMA OVER PALMS



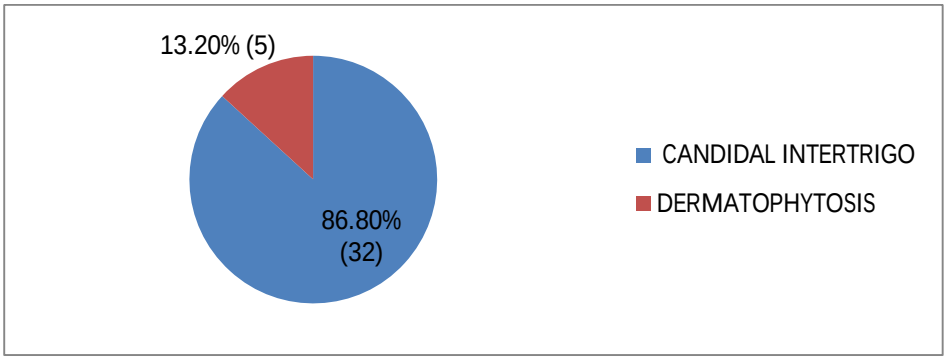
FUNGAL INFECTIONS

In our study, fungal infections of palms and soles were the second common palmoplantar dermatoses.

Total number of patients affected with fungal infection were 37.

Candidal intertrigo was the commonest fungal infection seen in 86.8% of palmoplantar dermatoses patients, followed by dermatophytosis in 13.2%.

Chart 9: Types of Fungal Infection Affecting Palms and Soles



CANDIDAL INTERTRIGO

Total number of patients affected with candidal intertrigo were 32.

Female preponderance(59%) was observed in the case of candidal intertrigo.

The maximum patients belonged to the age group of 17-40 years(58%).

Table 17: Age and sex wise distribution of candidal intertrigo

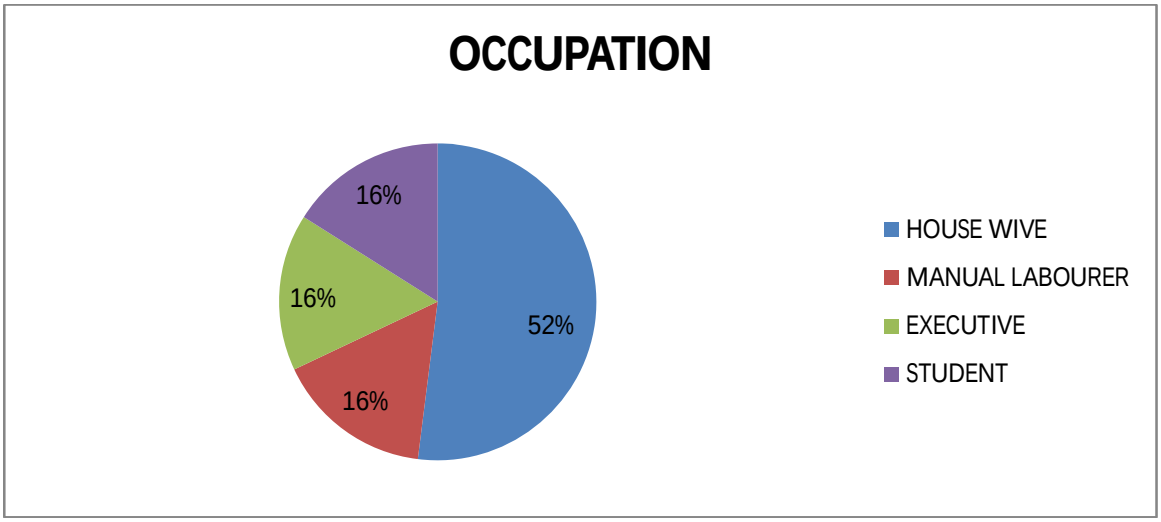
AGE GROUP	MALE	FEMALE	NO. OF PATIENTS
17-40 years	9	9	18(58%)
41-60 years	2	10	12(36%)
OTHERS	2	0	2(6%)
TOTAL	13(41%)	19 (59%)	32(100%)

.

52% of intertrigo patients were House wives.

Manual workers, executives and students were equally affected(16% each).

Chart 10: Occupational Distribution of Candidal Intertrigo.



72% of patients reported exacerbation of lesion in monsoon

. **DERMATOPHYTOSES OF PALMS AND SOLES**

Total number of cases were 5.

Four (80%) patients were male and one(20%) was female

Palmar involvement alone was seen in 60% of patients..

60% of patients were manual labourers.

PSORIASIS

Third common dermatoses in our study was palmoplantar psoriasis.

Out of 33 patients, psoriasis was observed highest in the age group of 17-40 years and second highest observed in the age group of 41-60 years.

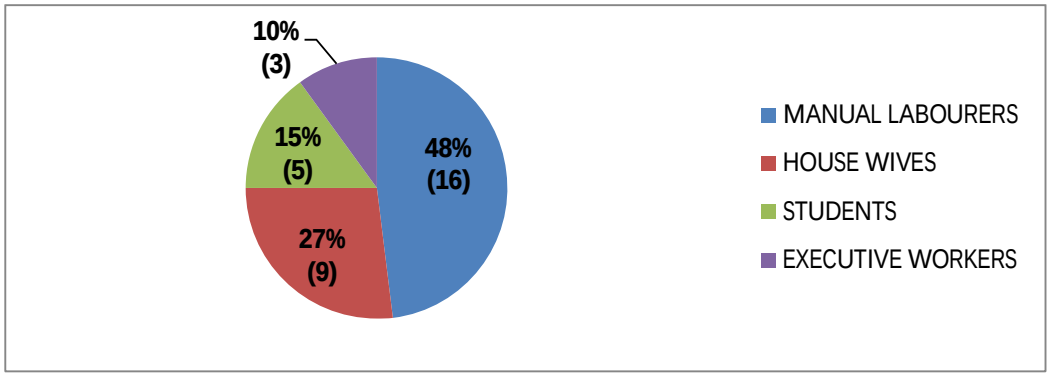
Among 33 patients, 54.5% were males and 45.5% were females and the male to female sex ratio was 1.3.

Table 18: Age and Sex wise distribution of Palmoplantar Psoriasis

AGE GROUP	MALE	FEMALE	NO. OF PATIENTS
11-16 years	1	0	1
17-40 years	8	10	18
41-60 years	10	4	14
TOTAL	19(54.5%)	14(45.5%)	33

Majority of patients (48%) were manual labourers and 27% were housewives.

Chart 11: Occupational Distribution of Palmoplantar Psoriasis



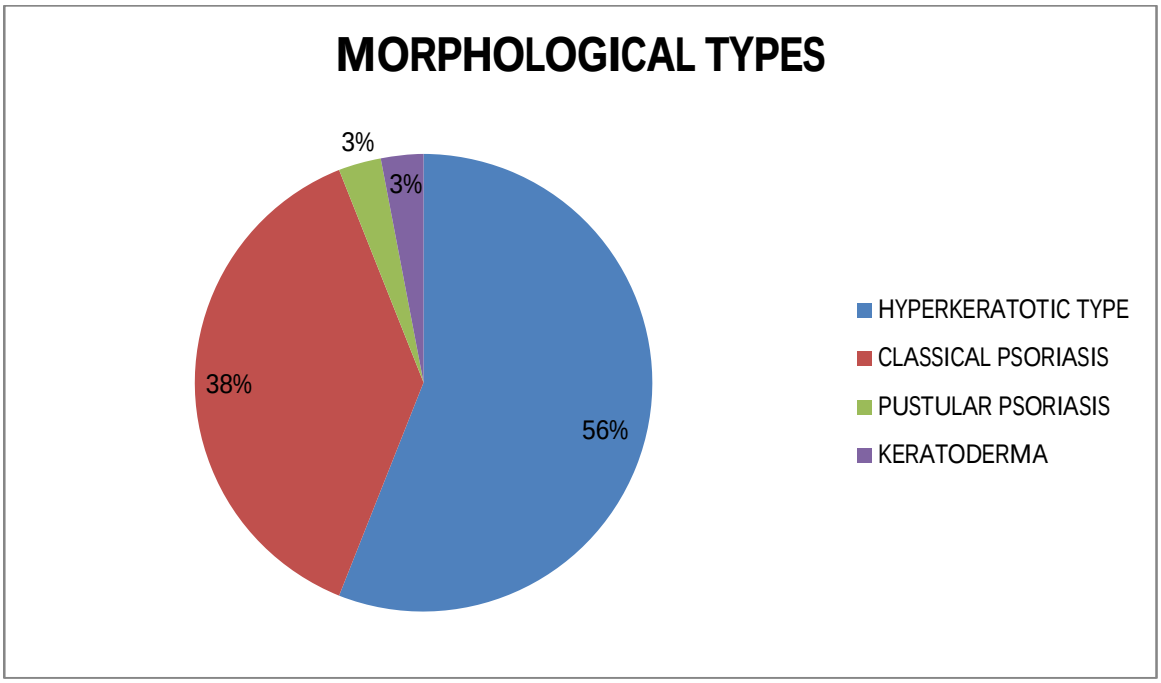
Majority of Male Patients were manual workers (78%) and female patients were house wives. 56% of patients had both pruritis and pain.

Seasonal variation was reported in 75% of patients in our study.

The most common presentation in psoriasis was involvement of both palms and soles(48.5%).

Hyperkeratotic type of palmoplantar psoriasis was observed in 56% , followed by classical psoriasis (38%).

Chart 12:Distribution of various Morphological types of Palmoplantar Psoriasis.

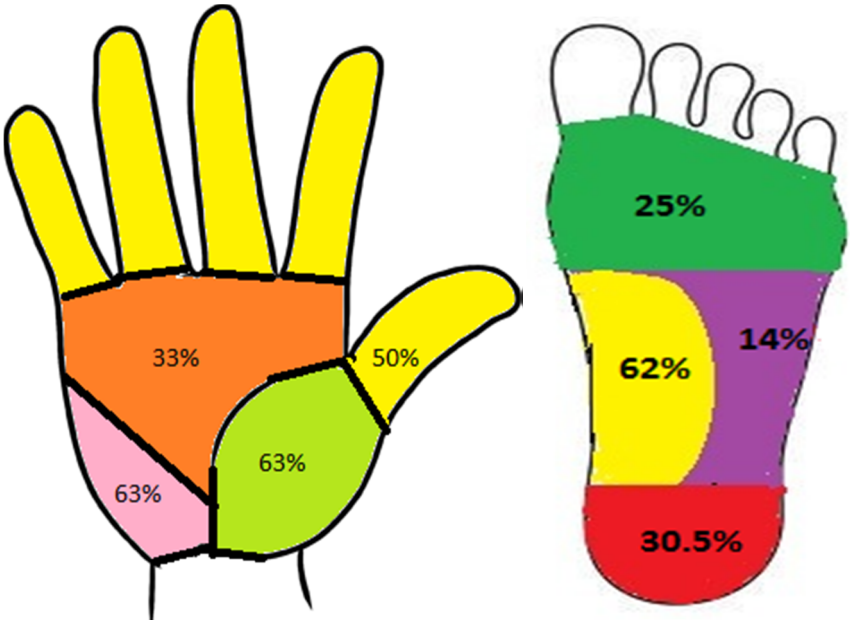


Distribution pattern of palmoplantar psoriasis

The most common involved sites in the palm are thenar and hypothenar areas (63%)

The most common involved site in sole was medial plantar arch(62%).

FIGURE 18: Distribution pattern of palmoplantar psoriasis



PALMOPLANTARWART

Total number of patients :19

Table 19: Age and Sex wise distribution of Palmoplantar Wart

AGE	MALE	FEMALE	NO. OF PATIENTS
17-40 years	7	3	10(53%)
41-60 years	4	4	7(37%)
<16 & >60 years	1	0	2(10%)
TOTAL	12(63%)	7(37%)	19(100%)

Wart was observed highest in the age group of 17-40 years(53%) and second highest in the age group of 41-60 years(37%).

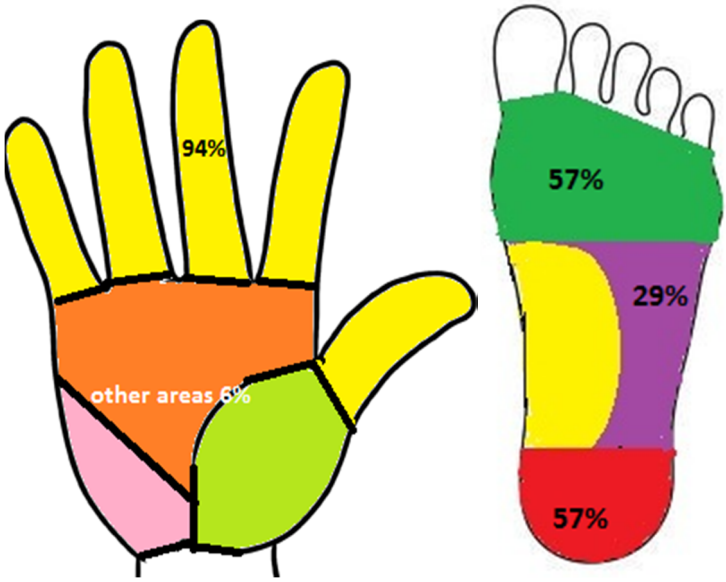
63% were males and 37% were females and the male to female sex ratio was 1.7:1

70% of patients had lesions in palm alone, 25% in sole alone and 5% had lesions in both palms and soles

In hand, the most common site was fingers (94%) and 6% of patients had involvement of other areas.

In sole, the distribution was equal in both head of metatarsal and heel(57%). 29% of patients had involvement of lateral border.

FIGURE 19: Distribution of Palmoplantar Warts.



PALMOPLANTAR HYPERHIDROSIS

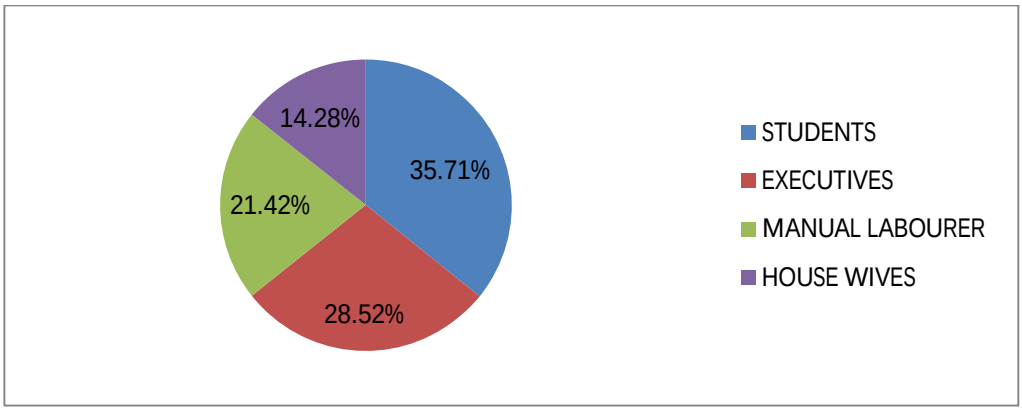
Male preponderance (57%) was noted and majority of patients were in 17-40 years of age.

Table 20: Age and sex wise distribution of palmoplantar hyperhidrosis

AGE	MALE	FEMALE	NO OF PATIENTS
11-16 years	1	2	3(21.5%)
17-40 years	6	2	8(57%)
41-60 years	1	2	3(21.5%)
TOTAL	8(57%)	6(43%)	14(100%)

Students(35.71%) and executives(28.52%) were predominantly affected by palmar and/or plantar hyperhidrosis.

Chart 13: Occupational Distribution of Palmoplantar Hyperhiderosis



50% had palmar hyperhidrosis, 28.5% had plantar hyperhidrosis and 21.5% had palmoplantar hyperhidrosis. 64.2% of patients had family history of hyperhidrosis.

PITTED KERATOLYSIS

Total number of patients with pitted keratolysis was 9.

Male preponderance was noted; Male : Female ratio 3.5:1

88.9% of the patients were in the age group between 17-40 years.

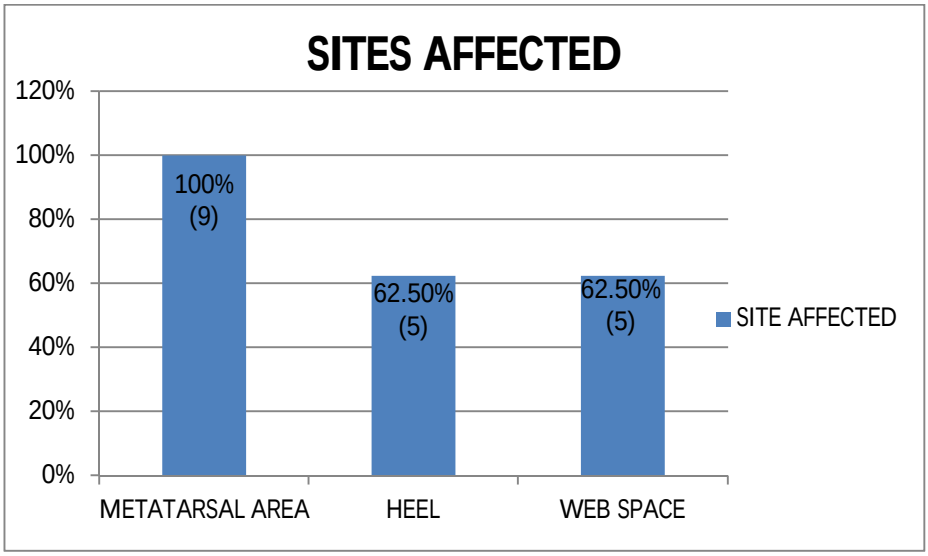
Pruritus was the commonest symptom seen in 66.7% of patients.

Plantar(88.8%) involvement was more common than palmar(33.3%) involvement.

55.6% of patient had associated hyperhidrosis.

Bare foot walking was reported in 33.3% of patients.

Chart 14: Distribution pattern of Pitted keratolysis over sole.



Weight bearing areas were commonly affected and particularly metatarsal area involvement in the sole was seen in all the patients(100%)

HAND FOOT MOUTH DISEASE

Eight cases were seen with male: female ratio of 2.8:1.

All the patients were less than 20 years of age and 50% of patients were less than 5 years.

All the patients were asymptomatic.

Palms and soles were affected bilaterally in all cases.

All the patients had typical skin and/or mucosal lesions elsewhere in the body.

LEPROSY- TROPHIC ULCER

Total number of patients were 8

It was observed highest in the age group of 41-60 years(71.4%)

70% were males and 30% were females.

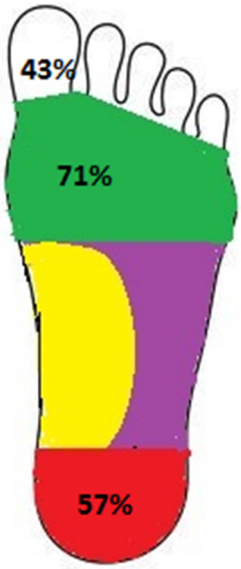
The male to female ratio: 2.5:1.

Table 21: Age and Sex wise distribution of trophic ulcer of leprosy

AGE	MALE	FEMALE	N0. OF PATIENTS
41-60 years	4	1	5 (71.4%)
>60 years	1	2	2 (28.6%)
TOTAL	5(62.5%)	3(37.5%)	8(100%)

The most common site of leprosy Ulcer in sole was observed in head of metatarsal (71%) and the second common site was observed in heel(57%)

FIGURE 20 : Distribution pattern of trophic ulcer due to leprosy in the sole.



CALLOSITY

Table 22: Age wise distribution of callosity

AGE GROUP	NUMBER OF PATIENTS
17-40 years	3
41-60 years	5
TOTAL	8

Male : female ratio was 1.6:1

All the patients were manual labourers.

Metatarsal area was the commonest site affected in sole and thenar & hypothenar eminance was the commonest site in the palm.

50% of the patients gave the history of barefoot walking.

LICHEN PLANUS

Table 23 Age wise distribution of Palmoplantar Lichen Planus

AGE GROUP	NUMBER OF PATIENTS
17-40 Years	5
41-60 years	2
TOTAL	7

Lesions seen in the palm alone in 42.9%(3) patients, sole alone in 57.10%(4) patients.

5(71.4%) of patients had hyperkeratotic lesion and 2(28.6%) patients were of erythrodermic type.

All the patients had pruritus and typical lichen planus lesions in other areas of skin and /or mucosa.

CORN

Table 24: Age wise Distribution of Corn.

AGE GROUP	NUMBER OF PATIENTS
17-40 years	4
41-60 years	1
TOTAL	5

Majority of patients were female with male : female ratio of 1.5:1.

Metatarsal area was involved in 3 patients and web space involvement seen in 2 patients.

All the patients presented with pain.

60% of patients had history of barefoot walking.

80% (4) of the patients had hard corn and metatarsal area was affected in all.

SECONDARY SYPHILIS

There were Four cases of secondary syphilis.

All the patients were males.

50% of patients were manual labourers , students and executives were 25% each.

75% of patients had skin lesion elsewhere in the body.

Both Palms and soles were involved in all the patients.

ERYTHEMA MULTIFORME

Three cases of erythema multiforme was reported.

Male : female ratio was 2:1.

All the patients were in the age group of 17-40 years.

Palmar involvement alone was seen in all the cases.

Two of the three patients had no symptoms.

PALMOPLANTAR KERATODERMA

One case of diffuse congenital palmoplantar keratoderma in both palms and soles with dorsal extension was seen.

CHRONIC CUTANEOUS LUPUS ERYTHEMATOSUS

One case of erosive localized chronic cutaneous lupus erythematosus involving both thenar eminence of palms was reported. The patient also had lesion over scalp.

EPIDERMAL NEVUS

Unilateral involvement of linear epidermal nevus over the sole was seen in one case.

COLOUR PLATES

FIGURE 1: HYPERKERATOTIC HAND ECZEMA

FIGURE 2: POMPHOLYX

FIGURE 3: PULPITIS (FINGER TIP ECZEMA)

FIGURE 4: RING ECZEMA

FIGURE 5: PUSTULAR PSORIASIS

FIGURE 6: HYPERKERATOTIC PALMAR PSORIASIS

FIGURE 7: CANDIDAL INTERTRIGO

FIGURE 8: TINEA PEDIS

FIGURE 9: PITTED KERATOLYSIS WITH HYPERHIDROSIS

FIGURE 10: PALMAR WART WITH HYPERHIDROSIS

FIGURE 11: SECONDARY SYPHILIS

FIGURE 12: CALLUS

FIGURE 13: LEPROSY TROPHIC ULCER

FIGURE 14 :HAND FOOT MOUTH DISEASE

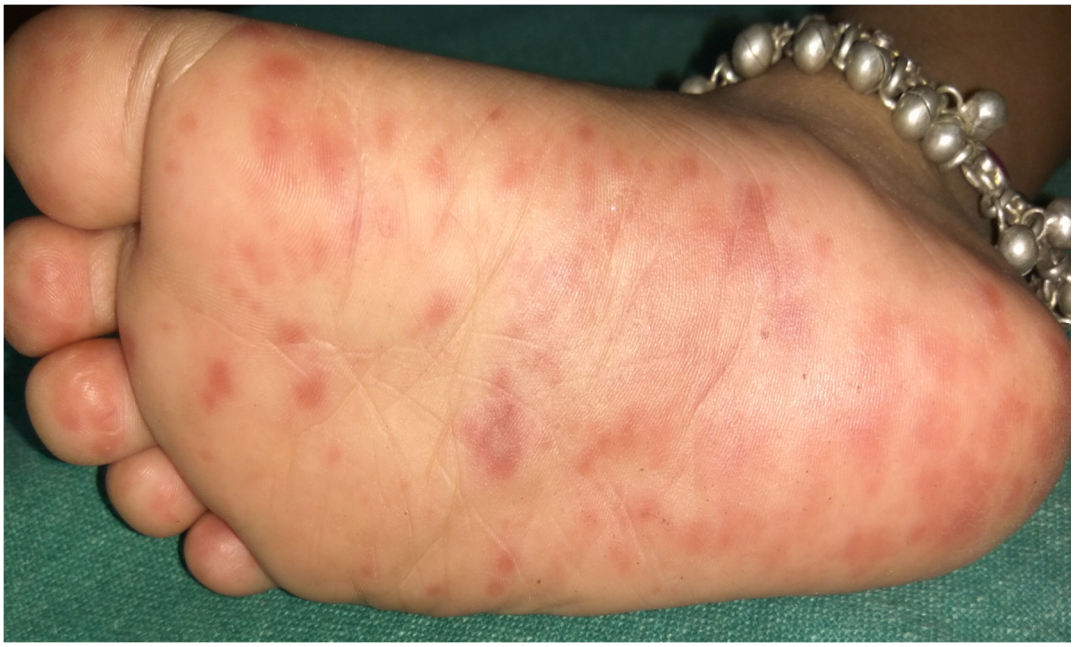


FIGURE 15: CHRONIC CUTANEOUS DLE

FIGURE 16: EPIDERMAL NEVUS

FIGURE 17: PALMOPLANTAR KERATODERMA

DISCUSSION

DEMOGRAPHIC DETAILS COMPARISON

Sex incidence

Totally 200 patients were enrolled in our study, out of these majority of patients (62%) were males. A similar male preponderance was also observed by P.A.Nair et al and kang et al [59, 60] . The reason for this observation may be due to indulging of men in outdoor occupation resulting in recurrent trauma over palms and soles. In contrast to this A.A.Hongel et al observed female preponderance in their study[61].

Age comparison

62.5% of patients were in most economically active age group (17-40 years). Two other studies were also reported similar findings [59, 61].

Occupational comparison

Majority of patients in our study were manual labourers(42%). A similar observation was also reported by chopra et al[62] and kodali et al[63], whereas P.A.Nair et al and A.A.Hongel et al observed palmoplantar dermatoses, predominantly in house wives[59, 61].

Symptoms

In our study pruritus (47.5%) was the prominent symptom in palmoplantar dermatoses, comparable to a study conducted by P.A.Nair et al[59].

Second common symptom was pain(41.5%) in our study, but P.A. Nair et al observed peeling of skin[59].

Seasonal variation

Seasonal variation of diseases affecting palms and soles was reported in 45.5% of patients in our study, which was higher than in the study conducted by P.A.Nair et al(29.7%)[59].

Sites affected

Involvement of palms(43.5%) alone was the commonest pattern of palmoplantar dermatoses in our study. In contrast, palms and soles were equally affected in two other studies [59, 61].

According to our study, the most common part affected in the palmal surface of hand was fingers(43%). P.A. Nair et al also made similar observation in their study[59].

In the sole metatarsal area(27.5%) areas was commonly involved in our study, in contrast to heel in P.A.Nair et al[59].

Pattern of involvement

The most common three palmoplantar dermatoses in our study were eczema(21.5%), followed by fungal infections(18.5%) and psoriasis(16.5%).

In contrast to our observation, A.A.Hongel et al reported psoriasis, fungal infections and focal hyperhidrosis were the three most commonest palmoplantar dermatoses[61].

P.A.Nair et al observed, palmoplantar psoriasis as the commonest dermatoses in palms and soles which was followed by palmoplantar keratoderma and eczema[59].

Kang et al reported palmoplantar pustulosis(23.2%) as the most common condition affecting palms and soles, followed by wart and eczema[60].

The reason for the increased number of eczema cases reported in our study was due to huge number of people working in textiles and engineering industries in our region.

Individual palmoplantar dermatosis

ECZEMA

The male to female ratio in our study was 2.3:1, comparable to study conducted by S.Handa et al[64].

Most men were manual labourers and female were house wives.

In our study, Pompholyx(14%) was the most commonest specific morphological type, similar to a study by S. Handa et al[64]. 30% morphological patterns of hand eczema did not fit into any specific types.

According to our study, atopy was one of the most important risk factor associated with hand eczema and it was reported in 51.6% of patients. JP.Thyssen et al[65]. and S.Handa et al[64] also observed the same in their study.

FUNGAL INFECTION

Commonest fungal infection observed in our study was candidal intertrigo (86.8%) followed by dermatophytosis(13.1%)

Majority of the patients were female(59%) and most of them were house wives (52%).

All the above observations were also made by A.A. Hongel et al[61].

PSORIASIS

Male preponderance(54.5%) was noted in our study, which was similar to the study done by Khandpur et al, A.A. Hongal et al and P.A.Nair et al[59,61]. But study from Kumar et al and Chopra et al reported almost equal involvement in men and women.

Similar to Kumar et al study[66], in our observation also majority of male patients were manual workers(78%) and female patients were house wives(64%).

Seasonal variation was reported in 75% of the patients in our study

Involvement of both palm and sole(48.5%) was the commonest presentation in our study, P.A.Nair et al, Khandpur et al and A.A.Hongel et al also observed similar findings in their study[59,67,61]. In a Study by Kumar et al reported plantar involvement was twice common compared to palmar involvement[66].

Hyperkeratotic type(56%) of palmoplantar psoriasis was commonly reported in our study, but Kang et al reported palmoplantar pustulosis as the commonest type[60] .

According to our study, in the palmar region pressure areas such as thenar, hypothenar(63%) and fingers(50%)) were more commonly affected and in the sole

non-pressure bearing insole(62%) area was more frequently involved . Khandpur et al, Kumar et al and A.A.Hongal et al also observed similar findings in their study[67,66,61].

PALMOPLANTAR WART

Our study reported male preponderance and majority of lesions in economically active age group (17-40 years) .

Palmar warts (75%) were more common than plantar warts.

All the above observations were comparable to the study of Ghadgepatil et al[68].

FOCAL HYPERHYDEROSIS

Similar to study from Park et al[69], preponderance of male(57%) in palmoplantar hyperhiderosis was noted in our study. This was in contrast to the study done by Srutton et al[70], where female preponderance was observed. In contrast to this Lear et al[71] in their study reported female preponderance and Strutton et al[70] reported equal sexual affection .

Majority of affected population in our study were students(35.71%) and executives(28.52%), which is comparable to the study by Park et al[69] and Lear et al[71].

In our study, majority of patients (64.2%) had family history of palmoplantar hyperhiderosis , similar to observations made by Km et al[72].

Palmar hyperhidrosis(50%) alone was the commonest pattern observed in our study, but park et al reported combined palmoplantar involvement as the commonest pattern[69].

PITTED KERATOLYSIS

In our study, male preponderance(77.8%) was recorded.

Pruritis(66.67%) was the commonest symptom reported.

Soles alone was involved in most of the patients.

Majority of lesion were seen over the weight bearing areas and more than half of patients had hyperhiderosis(55.6%).

All the above findings were similar to the study by Naik et al[73].

LICHEN PLANUS

In our study,

Male(71.4%) preponderance was seen.

Plantar (57%) involvement was slightly more common than palmar(43%) involvement.

Central area of palm(100%) in palmar region and insole in plantar region(100%) were affected more frequently then other areas.

Most common morphological type observed was hyperkeratotic type(60%).

Most prominent symptom was itching (100%). All the patients had skin or mucosal lichen planus lesions elsewhere in the body.

All the above observations were comparable to the study by Sinha et al[74].

TROPHIC ULCER OF LEPROSY

Similar to study by Subramoniam et al, metatarsal area(71.4%) was the most commonest site for leprosy ulcer in the sole[75].

Second commonest site for leprosy ulcer in our study was heel, in contrast to subramoniam et al observation of great toe.

In our study, 14.7% had bilateral involvement of sole which is almost similar to the study by subramoniam et al (20%)[75].

SECONDARY SYPHILIS

Similar to study of Udaya kumar et al, preponderance of secondary syphilis in male(100%) and manual labourers(50%) were observed in our study also[76].

Summary

Palmoplantar dermatoses is a heterogeneous disease. The dermatoses affecting palms and soles are classified based on the causes into inflammatory conditions, infections, papulosquamous disorders, keratinisation disorders, mechanical injuries, drug reactions and autoimmune disorders.

200 cases of palmoplantar dermatoses from June 2017 to May 2018 were included in the study.

Most of the patients were in economically active age group(17-40 years).

There was male preponderance in the study, with a male to female ratio of 1.6:1.

Pruritus was the commonest symptom in palmoplantar dermatoses.

Nearly half of the patients were manual labourers and half of the patients had seasonal exacerbations

Palms were the most common site involved in palmoplantar dermatoses.

In soles, metatarsal area was frequently involved.

Eczema, fungal infections and psoriasis were the three most common palmoplantar dermatoses.

ECZEMA

Male preponderance was observed.

Most common age group affected were 17-40 years.

Majority of patients were manual labourers.

Palmar involvement was common..

Pompholyx was the most common specific morphological type of eczema.

FUNGAL INFECTION

Female preponderance was observed.

Majority of patients were house wives.

Candidal intertigo was the commonest fungal infection.

Combined involvement of palms and soles were the commonest pattern of involvement.

Web space was more commonly affected.

PSORIASIS

Male preponderance was observed.

Most common age group affected were 17-40 years.

Majority of patients were manual labourers.

Combined involvement of palms and soles were common in the study.

Hyperkeratotic morphological type of palmoplantar psoriasis was common in the study.

Thenar and hypothenar areas were commonly involved in palms and insole was the commonest involved site in soles.

CONCLUSION

Palmoplantar dermatoses is a heterogeneous group of disorders and have versatile manifestations. There is no standard classification available to group these disorders. Most of the studies in the palmoplantar dermatoses were focused on the specific diseases. There are very few comprehensive studies affecting palms and soles, available in the medical literature. This study highlights the need for comprehensive studies with large population in palmoplantar dermatoses.

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.

ABSTRACT

TITLE :

A CLINICAL CROSS SECTIONAL STUDY ON PALMOPLANTAR DERMATOSES

BACKGROUND AND PURPOSE OF STUDY :

Dermatoses of palms and soles are common in daily practice. They limit the day to day activities of the patients. Often there will be difficulties to differentiate, diagnose and treat these conditions. Hence thorough knowledge about diseases affecting palms and soles is required.

AIM :

To study the clinical features and frequency of involvement of various palmoplantar dermatoses and their epidemiological aspects like age, sex distribution and occupation.

MATERIALS AND METHODS:

200 patients with diseases involving palms, soles or both were selected from OPD of Dermatology, Coimbatore Medical College Hospital, for a period of one year. In every patient, details like name, age, sex, occupation and marital status were noted. A detailed history of symptoms and their duration were recorded. A complete general and dermatological examination were carried out in all the patients. For scaly lesions, microscopic examination of scrapings in 10 percentage of KOH was done, in case of pustular lesions Gram Staining was done and for selected cases skin biopsy was taken.

RESULTS :

A total of 200 patients were enrolled, among which 53.46% were males. The most common age group affected was 17-40 years. Seasonal variation was reported in 45.5% of patients. The most common symptom was pruritus. Eczema was the most common palmoplantar dermatoses, followed by fungal infections and psoriasis. Palms were the most common site involved.

CONCLUSION :

Most of the studies in the palmoplantar dermatoses were focused on the specific diseases, this study highlights the need for comprehensive studies in palmoplantar dermatoses.

PATIENT PROFORMA

Name :

Age :

Sex:

Occupation:

Phone number:

Address :

COMPLAINTS: **DURATION**:

COMPLAINTS	**DURATION**
Pruritus	
Pain	
others	

HISTORY	**PRESENT**	**ABSENT**	**DURATION**
Atopy			
Hyperhiderosis			
Hypertension			
Diabetes			
Smoking			
Alcohol intake			

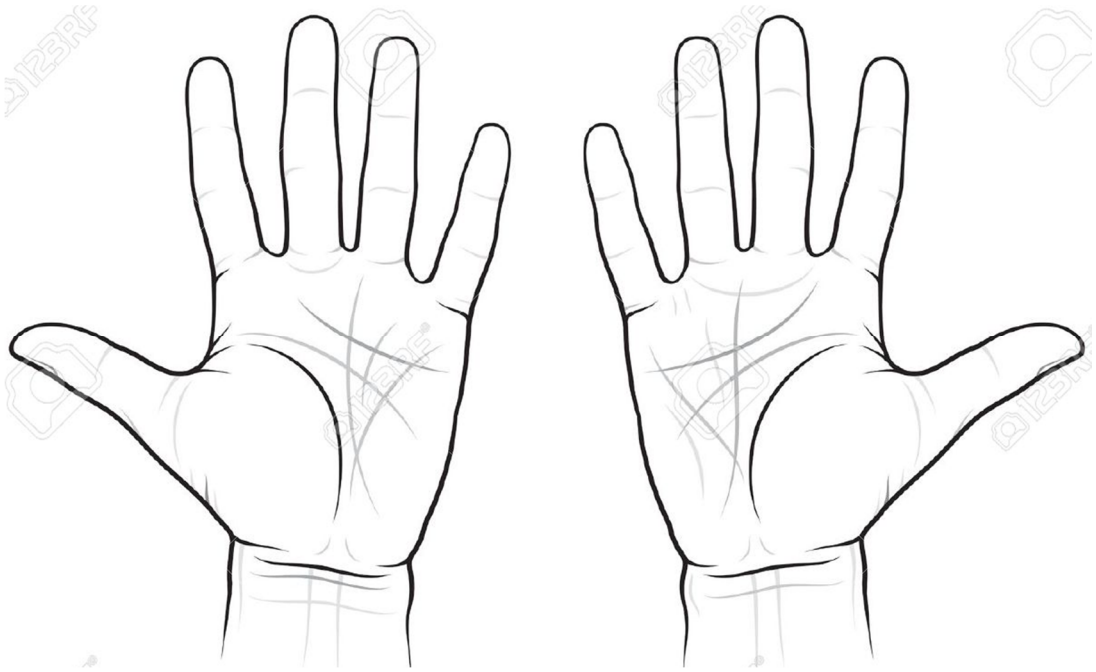
BARE FOOT WALKING	Present	Absent

SEASONAL EXACERBATION	Summer	Winter	Monsoon	No seasonal exacerbation

MORPHOLOGY OF LESIONS	PRESENT	ABSENT
Scales		
Papule/ nodule		
Plaque		
Ulcer		
Fissure		
Vesicles/ pustules		
Dorsal extension		

RIGHT SOLE **LEFT SOLE**

RIGHT PALM **LEFT PALM**



INVESTIGATIONS:

1.Gram stain

2.KOH

3.Paring;

4.HPE:

CONSENT FORM

I Mr/Mrs_____hereby volunteer to participate in the study **A CLINICAL CROSS SECTIONAL STUDY ON PALMOPLANTAR DERMATOSES**. I was explained about the nature of the study by the doctor, knowing which I fully give my consent to participate in this study. I also give consent to take clinical photographs for the purpose of the study.

Date :

Place :

Signature of the patient

xggpj y;go t k;

bgah;:

t a J :

ghypdk;:

K f t hp:

“ c s;s ';i f kwWk;ghjk;gwwpa njhy;neha;f S f;fhd” Ma;tpy;KG rk;kjj;Jld; g';F bfhs;fpnwd; ,e;j Ma;t[f;fhf vdJ g[i fggl ';f i sak;vLj;J bfhs;s kUj;Jt Uf;F c hpik ms pf;fpnwd; ehd; ve;j neuj;jpYk; Ma;tpy; ,Ue;J tpyfpf; bfhs;Sk; c hpik c z;L vdgij mwpnt d;

,lk; i fbahggk;

njjp:

MASTER CHART

S.NO	AGE	SEX	OCCUPATION	DIAGNOSIS	MORPHOLOGICAL	ASYMPTOMATIC	SYMPTOMATIC		DURATION	SEASONAL VARIA	HYPERHIDEROSIS	ATOPIC	FAMILY HISTORY	BAREFOOT WALKI	LESION MORPHOLOGY							PALMS												SOLE												LESION IN OTHER AREAS
							PRURITIS	PAIN							SCALES	PLAQUE	PAPULE	VESICLES/PUSTULES	FISSURE	ULCERS	PITS	THENAR		HYPOTHENAR		CENTRAL PALM		FINGERS		WEBSPACE		DORSAL EXTENSION		LATERAL BORDER		HEEL		INSOLE		METATARSAL AREA		WEB SPACE		TOES		EXTENSION TO DORSUM		
																						LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	
1	30	MA	ML	PS	HK	×	✓	✓	15M	WIN	×	×	✓	✓	✓	✓	×	×	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	✓	✓	✓
2	45	MA	ML	PS	CP	×	✓	×	18M	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	×	×	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×
3	32	MA	ML	PS	HK	×	✓	✓	14M	WIN	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	✓	✓	✓
4	44	MA	ML	PS	CP	×	✓	×	6M	SUM	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
5	28	MA	EX	PS	CP	✓	✓	×	4M	NO	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×
6	15	MA	ST	PS	CP	✓	✓	×	8M	NO	×	×	✓	×	✓	✓	×	×	×	×	×	✓	✓	✓	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
7	42	MA	ML	PS	CP	×	✓	×	7M	WIN	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×
8	48	FE	HW	PS	CP	×	✓	×	6M	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×
9	35	FE	HW	PS	HK	×	✓	✓	10M	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
10	55	MA	ML	PS	HK	×	✓	✓	15M	WIN	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	×
11	42	MA	ML	PS	CP	×	✓	×	1Y	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	✓
12	55	MA	ML	PS	HK	✓	✓	✓	30M	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	×
13	35	FE	HW	PS	CP	✓	×	×	10M	SUM	×	×	✓	×	✓	✓	×	×	×	×	×	×	✓	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
14	28	MA	ML	PS	PPK	×	✓	✓	5Y	WIN	×	×	✓	✓	✓	✓	×	×	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓
15	50	MA	ML	PS	CP	×	✓	×	5M	SUM	×	×	×	×	✓	✓	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
16	23	FE	ST	PS	CP	✓	✓	×	1Y	NO	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
17	45	FE	HS	PS	HK	×	✓	✓	9M	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
18	38	FE	ML	PS	HK	×	✓	✓	2Y	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	✓
19	32	MA	EX	PS	HK	×	✓	✓	2Y	WIN	×	×	×	×	✓	✓	×	×	✓	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	✓
20	55	MA	ML	PS	CP	×	✓	×	15M	WIN	×	×	✓	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
21	50	MA	ML	ps	HK	×	✓	✓	3y	WIN	×	×	×	✓	✓	✓	×	×	✓	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
22	20	MA	ST	PS	HK	×	✓	✓	8M	NO	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	×
23	40	FE	ML	PS	HK	×	✓	✓	1Y	WIN	×	×	✓	×	✓	✓	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×
24	38	FE	HW	PS	HK	×	✓	✓	18M	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×
25	40	MA	ML	PS	HK	×	✓	✓	1Y	WIN	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×
26	60	FE	HW	PS	HK	×	✓	✓	10M	NO	×	×	×	×	✓	✓	×	×	✓	×	×	✓	✓	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×
27	50	MA	ML	PS	HK	×	✓	✓	3M	NO	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	✓	✓	×	×	×	×	×
28	25	FE	ST	PS	HK	×	✓	✓	6M	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
29	35	FE	HW	PS	CP	×	✓	×	9M	SUM	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓
30	23	FE	ST	PS	HK	×	×	✓	1Y	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	✓	✓	×	×	×	×	✓
31	24	FE	HW	PS	PP	×	×	✓	15D	WIN	×	×	×	×	×	×	×	✓	×	×	×	✓	×	✓	✓	✓	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×
32	42	FE	ML	PS	HK	×	✓	✓	15M	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×
33	24	MA	EX	PS	HK	×	✓	✓	2Y	WIN	×	×	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×
34	22	MA	ST	LP	HK	×	✓	×	2M	NO	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓
35	34	FE	HW	LP	HK	×	✓	×	6M	NO	×	×	×	×	✓	×	✓	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
36	43	MA	ML	LP	ERY	×	✓	×	8M	NO	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	✓
37	40	MA	EX	LP	HK	×	✓	×	1Y	NO	×	×	×	×	✓	✓	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
38	35	FE	EX	LP	HK	×	✓	×	6M	NO	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
39	45	MA	ML	LP	HK	×	✓	✓	3M	NO	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	✓
40	4O	MA	ML	LP	ERY	×	✓	NO	4M	NO	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	✓	×	✓	✓

S.NO	AGE	SEX	OCCUPATION	DIAGNOSIS	MORPHOLOGICAL TYPE	ASYPTOMATIC	SYMPTOMATIC		DURATION	SEASONAL VARIATION	HYPERHIDEROSIS	ATOPIC	FAMILY HISTORY	BAREFOOT WALKING	LESION MORPHOLOGY							PALM										SOLE																LESION IN OTHER AREAS
							PRURITIS	PAIN							SCALE	PLAQUE	PAPULE	VESICLES/PUSTULES	FISSURE	ULCERS	PITS	THENAR		HYPOTHENAR		CENTRAL PALM		FINGERS		WEBSPACE		DORSAL EXTENSION		LATERAL BORDER		HEEL		INSOLE		METATARSAL AREA		WEB SPACE		TOES		EXTENSION TO DORSUM		
																						LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	×
1	38	MA	MW	PK	×	✓	×	×	15D	SUM	×	×	×	✓	×	×	×	×	×	×	✓	✓	✓	✓	✓	×	×	×	×	×	×	LT	RT	✓	✓	✓	✓	✓	✓	×	×	✓	✓	✓	✓	×	×	×
2	22	FE	ST	PK	×	×	✓	×	2M	SUM	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×
3	21	MA	ST	PK	×	×	✓	×	15D	MON	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×
4	35	MA	MW	PK	×	✓	×	×	1M	MON	×	×	×	✓	×	×	×	×	×	×	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×
5	25	MA	ST	PK	×	×	✓	×	5M	MON	✓	×	×	×	×	×	×	×	×	×	✓	×	✓	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
6	43	MA	EX	PK	×	×	✓	×	2M	WIN	✓	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	✓	✓	×	×	×	×	×
7	32	FE	MW	PK	×	✓	×	×	20D	SUM	✓	×	×	✓	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	×	×	×	✓	✓	×	×	×
8	25	MA	ST	PK	×	×	✓	×	1M	MON	✓	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	✓	×	×	×	×	✓	×	✓	×	×	×
9	21	MA	ST	PK	×	×	✓	×	3M	MON	✓	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	✓	✓	×	×	×
10	23	MA	ST	WART	×	✓	×	×	3m	NO	✓	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
11	25	MA	ST	WART	×	×	×	✓	4M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×
12	28	MA	MW	WART	×	×	×	✓	6M	NO	✓	×	×	✓	×	×	✓	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	✓	×	×	×	×	×	×
13	34	MA	MW	WART	×	×	×	✓	3M	NO	✓	×	×	✓	×	×	✓	×	×	×	×	✓	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
14	16	MA	ST	WART	×	✓	×	×	2M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
15	20	MA	ST	WART	×	×	×	✓	3M	NO	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
16	56	FE	HW	WART	×	×	×	✓	4M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
17	43	MA	MW	WART	×	×	×	✓	5M	NO	✓	×	×	✓	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×
18	45	MA	MW	WART	×	×	×	✓	6M	NO	×	×	×	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
19	20	MA	MW	WART	×	×	×	✓	4M	NO	✓	×	×	✓	×	×	✓	×	×	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
20	42	FE	HW	WART	×	✓	×	×	5M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
21	38	FE	HW	WART	×	×	×	✓	6M	NO	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×
22	32	FE	HW	WART	×	×	×	✓	3M	NO	✓	×	×	✓	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
23	30	MA	EX	WART	×	×	×	✓	7M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
24	55	FE	HW	WART	×	×	×	✓	5M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
25	42	MA	MW	WART	×	×	×	✓	9M	NO	✓	×	×	✓	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
26	22	FE	ST	WART	×	✓	×	×	6M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×
27	44	MA	MW	WART	×	×	×	✓	8M	NO	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
28	67	FE	MW	WART	×	×	×	✓	10M	NO	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
29	12	FE	ST	HFMD	×	✓	×	×	2D	NO	×	×	×	×	×	×	×	×	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	✓	✓	×	×	✓
30	3	MA	OT	HFMD	×	✓	×	×	4D	NO	×	×	✓	×	×	×	✓	×	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	✓	✓	×	×	✓
31	15	MA	ST	HFMD	×	✓	×	×	3D	NO	×	×	×	×	×	×	✓	×	✓	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓
32	1	MA	OT	HFMD	×	✓	×	×	3D	NO	×	×	×	×	×	×	×	×	✓	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓
33	3	MA	OT	HFMD	×	✓	×	×	5D	NO	×	×	✓	×	×	×	✓	×	✓	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	✓	✓	×	×	✓
34	2	MA	OT	HFMD	×	✓	×	×	4D	NO	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	✓	✓	×	×	✓
35	18	MA	ST	HFMD	×	✓	×	×	4D	NO	×	×	×	×	×	×	✓	×	✓	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓

36	17	FE	ST	HFMD	×	×	✓	×	5D	NO	×	×	×	×	×	×	✓	×	✓	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	✓	✓	×	×	✓
37	18	MA	ST	SS	×	✓	×	×	15D	NO	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×
38	34	MA	EX	SS	×	✓	×	×	1M	NO	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×
39	28	MA	ML	SS	×	✓	×	×	15D	NO	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	✓
40	36	MA	ML	SS	×	✓	×	×	20D	NO	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	✓
41	37	MA	ML	TIN	HK	×	✓	×	1M	NO	×	×	×	×	✓	✓	×	×	×	×	×	✓	✓	✓	✓	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓
42	16	MA	ST	TIN	HK	×	✓	×	2M	NO	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	×	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓
43	37	MA	ML	TIN	HK	×	✓	×	1M	NO	×	×	×	×	✓	✓	×	×	×	×	×	✓	×	×	×	✓	×	✓	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓
44	43	MA	ML	TIN	HK	×	✓	×	2M	NO	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	×	×	×	×	×	✓	×	×	×	×	×	✓	✓
45	40	FE	HW	TIN	HK	×	✓	×	1M	NO	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	×	✓	×	×	×	✓	×	×	×	×	×	×	✓	✓
46	35	MA	EX	C.INT	×	✓	×	×	20D	MON	×	×	×	×	×	✓	×	×	×	×	×	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	✓
47	17	MA	ST	C.INT	×	✓	×	×	15D	MON	×	×	×	✓	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	✓
48	45	FE	HW	C.INT	×	×		✓	1M	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
49	37	FE	HW	C.INT	×	×	✓	✓	15D	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×
50	34	MA	ML	C.INT	×	×	×	✓	20D	NO	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
51	25	FE	HW	C.INT	×	×	×	✓	7D	MON		×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
52	44	FE	ML	C.INT	×	×	×	✓	2M	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
53	43	MA	EX	C.INT	×	×	×	✓	1M	MON	✓	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×
54	28	MA	HW	C.INT	×	×	×	✓	20D	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
55	50	FE	HW	C.INT	×	×	✓	✓	15D	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
56	18	MA	ST	C.INT	×	×	×	✓	20D	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×
57	54	MA	ML	C.INT	×	×	×	✓	1M	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
58	42	FE	HW	C.INT	×	×	×	✓	15D	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
59	38	MA	EX	C.INT	×	×	×	✓	10D	MON	✓	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×
60	35	FE	HW	C.INT	×	×	×	✓	7D	NO	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
61	30	FE	ML	C.INT	×	×	✓	✓	2M	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
62	44	FE	HW	C.INT	×	×	×	✓	10D	NO	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
63	28	MA	EX	C.INT	×	×	×	✓	1M	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
64	16	MA	ST	C.INT	×	×	×	✓	2OD	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×
65	35	FE	HW	C.INT	×	×	×	✓	12D	NO	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
66	21	MA	ST	C.INT	×	×	×	✓	1M	MON	✓	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
67	42	FE	HW	C.INT	×	×	✓	✓	2M	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×
68	13	MA	ST	C.INT	×	×	×	✓	15D	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
69	55	FE	HW	C.INT	×	×	×	✓	1M	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
70	30	MA	EX	C.INT	×	×	✓	✓	10D	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
71	52	FE	HW	C.INT	×	×	×	✓	12D	NO	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
72	30	FE	ML	C.INT	×	×	×	✓	20D	MON	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×
73	36	FE	HW	C.INT	×	×	×	✓	15D	MON	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×
74	48	FE	HW	C.INT	×	×	×	✓	5D	NO	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
75	27	FE	HW	C.INT	×	×	×	✓	1M	NO	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
76	52	FE	HW	C.INT	×	×	×	✓	20D	NO	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
77	38	FE	HW	C.INT	×	×	×	✓	10D	NO	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
																																×	×															

S.NO	AGE	SEX	OCCUPATION	DIAGNOSIS	MORPHOLOGICAL TYPE	ASYMPTOMATIC	SYMPTOMATIC		DURATION	SEASONAL VARIATION	HYPERHIDEROSIS	ATOPIC	FAMILY HISTORY	BAREFOOT WALKING	LESION MORPHOLOGY						PALMS										SOLE														
							PRURITIS	PAIN							SCALE	PLAQUE	PAPULE	VESICLES/PUSTULES	FISSURE	ULCERS	PITS	THENAR		HYPOTHENAR		CENTRAL PALM		FINGERS		WEBSPACE		DORSAL EXTENSION		LATERAL BORDER		HEEL		INSOLE		METATARSAL AREA		WEB SPACE		TOES		EXTENSION TO DORSUM		LESION IN OTHER AREAS
																					LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	RT	LT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	
1	11	MA	ST	EZ	US	×	✓	×	6M	SUM	×	✓	✓	×	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×
2	33	MA	ML	EZ	APRON	×	✓	×	1Y	SUM	×	×	×	✓	✓	✓	×	×	×	×	×	✓	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
3	30	FE	ML	EZ	PVS	×	✓	×	8M	SUM	×	✓	×	✓	✓	✓	×	✓	×	×	×	×	✓	✓	✓	×	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×
4	22	MA	ST	EZ	POM	×	✓	×	20D	NO	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	✓	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×
5	25	FE	HW	EZ	US	×	✓	×	7M	SUM	×	✓	×	×	✓	✓	×	×	×	×	×	✓	×	×	✓	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
6	45	MA	ML	EZ	PPK	×	✓	×	2Y	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×
7	37	FE	ML	EZ	US	×	✓	×	1Y	WIN	×	✓	×	✓	✓	✓	×	×	×	×	×	✓	×	×	✓	×	×	✓	✓	×	×	✓	✓	×	×	✓	✓	×	×	×	×	×	×	✓	✓	×
8	70	MA	ML	EZ	US	×	✓	×	3Y	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
9	10	MA	ST	EZ	JFD	×	✓	×	3Y	SUM	✓	✓	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	✓	✓	×	×	×
10	64	MA	ML	EZ	US	×	✓	×	1Y	MON	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×
11	35	MA	ML	EZ	FT	×	✓	×	6M	MON	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
12	26	MA	ST	EZ	FT	×	✓	×	8M	SUM	×	✓	×	×	✓	✓	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
13	45	FE	HW	EZ	WT	✓	×	×	6M	NO	×	×	×	✓	×	×	×	×	✓	×	×	✓	✓	✓	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
14	22	MA	ST	EZ	US	×	✓	×	1Y	SUM	×	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
15	40	MA	ML	EZ	CAD	×	✓	×	6M	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	✓	×	×	✓	✓	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×
16	42	MA	EX	EZ	APRON	×	✓	×	8M	SUM	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
17	65	MA	ML	EZ	US	×	✓	×	1Y	WIN	×	×	×	✓	✓	✓	×	×	×	×	×	×	✓	✓	×	×	✓	×	×	✓	×	×	×	×	×	×	✓	×	×	×	×	×	✓	✓	×	×	×
18	34	MA	EX	EZ	FT	×	✓	×	9M	NO	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
19	42	MA	ML	EZ	POM	×	✓	×	1M	NO	×	✓	×	✓	×	×	×	✓	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
20	70	MA	ML	EZ	HE	×	✓	×	7M	NO	×	×	×	✓	✓	✓	×	×	✓	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×
21	35	FE	HW	EZ	WT	✓	×	×	8M	WIN	×	✓	×	×	✓	✓	×	×	✓	×	×	✓	✓	✓	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
22	45	FE	HW	EZ	WT	✓	×	×	8M	WIN	×	✓	×	✓	×	×	×	×	✓	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
23	30	MA	ML	EZ	HE	×	✓	✓	1Y	SUM	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	✓	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
24	39	MA	ML	EZ	FT	×	✓	×	5M	NO	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
25	32	MA	ML	EZ	HE	×	✓	✓	1Y	NO	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
26	27	FE	ML	EZ	US	×	✓	×	6M	NO	×	✓	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
27	35	MA	ML	EZ	HE	×	✓	✓	1Y	WIN	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
28	43	MA	ML	EZ	POM	×	✓	×	1M	NO	×	✓	×	✓	×	×	×	✓	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
29	34	FE	HW	EZ	US	×	✓	×	6M	SUM	×	×	×	✓	✓	✓	×	×	×	×	×	✓	×	×	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
30	54	MA	ML	EZ	HE	×	✓	✓	9M	NO	×	×	×	✓	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
31	32	MA	ML	EZ	POM	×	✓	×	1M	NO	×	✓	×	✓	×	×	×	✓	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
32	37	FE	HW	EZ	WT	✓	×	×	1Y	WIN	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	✓	×	✓	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
33	42	FE	ML	EZ	PPK	×	✓	×	2y	SUM	×	×	×	✓	✓	✓	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×
34	45	MA	ML	EZ	POM	×	✓	×	15D	NO	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
35	35	MA	EX	EZ	US	×	✓	×	8M	NO	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
36	54	FE	ML	EZ	US	×	✓	×	7M	W	×	×	×	✓	✓	✓	×	×	×	×	×	×	✓	×	✓	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
37	44	FE	HW	EZ	US	×	✓	×	10M	NO	×	×	×	×	✓	✓	×	×	×	×	×	×	✓	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
38	49	MA	ML	EZ	APR	✓	×	×	1Y	WIN	×	×	×	✓	×	×	×	×	✓	×	×	×	×	×	×	✓	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
39	50	FE	HW	EZ	RING	×	✓	×	10M	MON	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×
40	42	MA	ML	EZ	US	×	✓	×	1Y	SUM	×	×	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
41	38	MA	ML	EZ	US	×	✓	×	9M	NO	×	✓	×	✓	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
42	28	MA	ML	EZ	POM	×	✓	×	1M	NO	×	✓	×	✓	×	×	×	✓	×	×	✓	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
43	8	MA	ST	EZ	JFD	✓	×	×	4Y	SUM	✓	✓	×	×	✓	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	✓	✓	×	×	×

S.NO	AGE	SEX	OCCUPATION	DIAGNOSIS	MORPHOLOGICAL TYPE	ASYMPTOMATIC	SYMPTOMATIC		DURATION	SEASONAL VARIATION	HYPERHIDEROSIS	ATOPIC	FAMILY HISTORY	BAREFOOT WALKING	LESION MORPHOLOGY							PALMS												SOLE														LESION IN OTHER AREAS
							PRURITIS	PAIN							SCALES	PLAQUE	PAPULE	VESICLES/PUSTULES	FISSURE	ULCERS	PITS	THENAR		HYPOTHENAR		CENTRAL PALM		FINGERS		WEBSPACE		DORSAL EXTENSION		LATERAL BORDER		HEEL		INSOLE		METATARSAL AREA		WEB SPACE		TOES		EXTENSION TO DORSUM		
																						LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	
1	38	MA	ML	CA	×	✓	×	×	5y	NO	×	×	×	×	×	✓	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
2	40	MA	ML	CA	×	✓	×	×	3Y	NO	×	×	×	×	×	✓	×	×	×	×	×	×	✓	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×
3	54	FE	ML	CA	×	✓	×	×	8Y	NO	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×
4	53	MA	ML	CA	×	✓	×	×	8Y	NO	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	✓	×	×	×	×
5	44	FE	ML	CA	×	✓	×	×	5Y	NO	×	×	×	✓	×	✓	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
6	58	MA	ML	CA	×	✓	×	×	2Y	NO	×	×	×	✓	×	✓	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
7	39	MA	ML	CA	×	✓	×	×	3Y	NO	×	×	×	×	×	✓	×	×	×	×	×	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
8	63	FE	ML	CA	×	✓	×	×	1Y	NO	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×
9	55	MA	ML	CO	×	×	×	✓	1y	NO	×	×	×	✓	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
10	32	FE	HW	CO	×	×	×	✓	6M	NO	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
11	44	FE	HW	CO	×	×	×	✓	2Y	NO	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×
12	38	FE	HW	CO	×	×	×	✓	4M	NO	×	×	×	✓	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×
13	56	MA	ML	CO	×	×	×	✓	8M	NO	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×
14	52	MA	OT	LU	×	×	×	×	2Y	NO	×	×	×	✓	×	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×
15	62	MA	OT	LU	×	×	×	×	18M	NO	×	×	×	✓	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×
16	41	MA	OT	LU	×	×	×	×	9M	NO	×	×	×	✓	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
17	65	FE	OT	LU	×	×	×	×	1Y	NO	×	×	×	✓	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	✓	×	×	×	×	×
18	45	FE	OT	LU	×	×	×	×	6M	NO	×	×	×	✓	×	✓	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	×
19	58	MA	ML	LU	×	×	×	×	8M	NO	×	×	×	✓	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	✓
20	44	MA	ML	LU	×	✓	×	×	10M	NO	×	×	×	✓	×	×	×	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	×	×	×	×	×	×	×	✓
21	21	FE	ST	FH	×	✓	×	×	4Y	NO	✓	×	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×
22	15	FE	ST	FH	×	✓	×	×	1Y	NO	✓	✓	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
23	28	MA	EX	FH	×	✓	×	×	10Y	NO	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
24	32	MA	EX	FH	×	✓	×	×	8Y	SUM	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
25	45	MA	ML	FH	×	✓	×	×	12Y	NO	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
26	26	MA	EX	FH	×	✓	×	×	10Y	NO	✓	✓	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
27	55	FE	HW	FH	×	✓	×	×	20Y	NO	✓	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
28	24	MA	ST	FH	×	✓	×	×	4Y	NO	✓	×	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
29	29	MA	EX	FH	×	✓	×	×	10Y	SUM	✓	×	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	×	×	✓	✓	✓	✓	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
30	35	FE	HW	FH	×	✓	×	×	10Y	NO	✓	✓	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
31	17	MA	ST	FH	×	✓	×	×	2Y	NO	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
32	43	FE	ML	FH	×	✓	×	×	10Y	SUM	✓	×		×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
33	31	MA	ML	FH	×	✓	×	×	10Y	NO	✓	×	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
34	16	FE	ST	FH	×	✓	×	×	1Y	NO	✓	×	✓	×	×	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×
35	39	MA	EX	DLE	×	×	×	✓	1Y	NO	×	×	×	×	×	✓	×	×	×	×	×	✓	✓	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
36	38	MA	EX	EMF	×	×	×	✓	2D	NO	×	×	×	×	×	×	✓	×	×	×	×	✓	✓	✓	×	✓	×	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
37	35	FE	HW	EMF	×	✓	×	×	4D	NO	×	×	×	×	×	×	✓	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
38	21	FE	HW	EMF	×	✓	×	×	3D	NO	×	×	×	×	×	×	✓	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓
39	34	MA	0	PPK	×	×	✓	✓	BIR	WIN	×	×	×	×	✓	✓	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
40	45	MA	ML	EN	×	×	✓	✓	BIR	NO	×	×	×	×	✓	✓	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	✓	×	✓	×	✓	×	✓	×	✓	×	×	×	×	×	✓